Access DB# 41669

SEARCH REQUEST FORM

CRFE

MEST

CICI	Scientific and Technica	I Information Cer	iter	. 0
\mathcal{L}	n Hines	<u>Garago</u>	- Section of the sect	12/Ni
Requester's Full Name // Pho	one Number 305-048	Examiner # :	Date: <u>り</u> er: <u>らり</u> 4えんご	700.
Mail Box and Bldg/Room Loc				DISK E-MAIL
If more than one search is si	ubmitted, please prioritiz	e searches in ord	ler of need.	
**************************************	******	******	******	be searched.
Include the elected species or structure utility of the invention. Define any to	res, keywords, synonyms, acron	yms, and registry num	bers, and combine with	the concept or
known. Please attach a copy of the co			र्वे विकास समिति । जन्म	
Title of Invention:	led nucleuc	acido		
Inventors (please provide full name	es): JEHK LING	DING	DENAN S	CHAT COCC
BOW HO		<u> </u>		7 · · · · · · · · · · · · · · · · · · ·
Earliest Priority Filing Date: _	10/24/99			
For Sequence Searches Only Please appropriate serial number.	include all pertinent information (parent, child, divisional,	or issued patent number	s) along with the
and the second s	•			
V Please sea	AMEN SED	(CK X))	رجل المرازية	rách kurkkana.
Miller Bull	101. SEQ.			
A TO SERVICE OF THE S			Same and the second	Maria Instrumental
4.64.47			175	(A)
Mar II	Karamatan da sarah d	antagony a wasa Statu u salahan	Transfer de la company	
JNan()				Artes (1)
		1.00	and the state of t	rent o
		N. Andrews		
THE REPORT OF THE PARTY OF	And the State of the State of			
mucilli.				
prof 10				
STAFF USE ONLY	Type of Search	Vendors	and cost where applica	ible
Searcher Cy Wine My	NA Sequence (#)	A STN LAWRENCE CO		
Searcher Phone # 3 / / / / /	AA Sequence (#)	cor Dialog	Action of a testing in a	
Searcher Location:	Structure (#) Bibliographic	Questel/Orbit		The state of the s
Date Searcher Picked Up	Litigation	Lexis/Nexis_	aprice daying a	*********
到达到内部的现在分别,所以为1900年, 1700年,	Fulltexi	化化乙酰磺胺基苯酚	135564/62	10 10 10 10 10 10 10 10 10 10 10 10 10 1
Clencal Prop Time:	Pater® Family	www/Internet		
Online Time: 7 7 7	Other	Other (specify)	The many second and address of	the state of the problem
PTO-1590 (1-2000)			- 1 Tile 1	
	· · · · · · · · · · · · · · · · · · ·			

09PCH7 09PCh7 09PCh7 097179 097179 047973 047973 09R754 09R754	43 44.8 598 2 083032 43 44.8 599 2 Q9LOIO 43 44.8 613 4 09NVM3	43 44.8 729 4 QNWII Q9nKIL2 43 44.8 767 5 Q9V26 Q9V26 42.5 44.3 893 5 Q16221 Q16221 42.5 44.3 1113 2 Q6CA2 Q91249	42 43.8 107 10 Q9LEP7 42 43.8 107 10 Q9LEP7 42 43.8 110 T 0 Q9LEP7 42 43.8 110 T 0 Q9LEP7 42 43.8 110 T 0 Q9LEP7	4224	42 43.8 43.0 2 000312 42 43.8 634 2 095658 42 43.8 657 2 086463	42 43.8 1339 13 09W612 41.5 43.2 296 5 09V729	43.2 351 2 09PL26 43.2 425 5 09VGH2 43.2 1305 3 09P424	42.7 109 2 <u>0</u> 9R		SEQUENCE 1/88 AA; 195001 P
GenCore Version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.	OM protein - protein search, using sw model	Run on: May 3, 2001, 15:51:41 : Search time 17.84 Seconds (without alignments) 137.969 Million cell updates/sec	Title: US-09-426-776-10 Perfect score: 96 Sequence: 1 MRVIVIALAVALAVGDGSNLG 21	Scoring table: BLOSUM62 Gapop 10.0 , Gapext 0.5	Searched: 374700 seqs, 117207915 residues	Total number of hits satisfying chosen parameters: 374700	Minimum DB seq length: 0 Maximum DB seq length: 2000000000	Post-processing: Minimum Match 100% Maximum Match 100% Listing first 45 summaries	SPTREMEL_15:	43 44.8 127 2 09RPH6 43 44.8 181 4 09NTL2 43 44.8 273 2 006170

Conservan.

셤

```
RA SULTON G.G., Wortman J.R., Yandell W.D., Zhang Q., Chen L.X.,
RA Brandon R.C., Rogers Y. H.C., Blazez R.G., Nelson C.R., Millos G.L.G.
RA Moril J.F., Agbayani A. An H.-J., Andrews Pfennkoch C. Baldwin D.
Ballew R.W. Basa A., Barcandle J., Barzer Pfennkoch C., Baldwin D.
Ballew R.W. Basa A., Barcandle J., Barzer Pfennkoch C., Baldwin D.
RA Berson K.Y., Bencos P.V., Berman B.P. Bhandmari D., Bolthakov S.,
Ra Burtis K.C., Busam D.A., Buller H. Cadleu E., Center A., Chandra I.
Ra Cherry J.W., Cadley S., Dahlke C., Davemport L.B., Doukis P.,
RA Dedson K., Doug L.E., Downes H., Duktsell P. Brotlier P.,
RA Dodson K., Doug L.E., Downes H., Duyen R.D., Dev I., Diezz S.W.,
RA Doub R. D. Delcher A., Deng R.S., Gelbart W., Glasser K.,
RA Cong K., Doug L.E., Downes H., Duyen R.S., Felstschman W.,
RA Cold K., Gordel J.H., Gu Z., Guan P., Harris M.
Harris N.L., Harvey D., Helman T.J., Hernandez J.R., Houck J.,
RA Harris N.E., Rodlard T.J., Hernandez J.R., Houck J.,
RA Manall M., Kalush P., Karpen G.H., Kazitz S., Kulp D., Lai E.,
RA Lasso P., Leil T., Leviesk A.A., I. J., Li J., Liang Y., Lin X.,
RA Mallal M., Morly W., Wobbert D.R., Postre H. A.,
RA Relson D.R., Morite B., Murphy L., Muzny D.H., Nelson D.L.,
RA Relson D.R., Mison K.A., Nison K., Wolker M. P., Smith T.,
RA Relson D.W., Pitlama G.S., Pan S., Pollard J., Wen S., Soneler P., Shen H.,
RA Shillams S.M., Woodey T., Wohley K.C., Wu D., Yorkes H.,
RA Shillams S.M., Weasarman D.N., Shupski H.P., Smith T.,
RA Relson D.R., Wester B.W., Wenney R.W., Venter E., Wang A.H.,
RA Wers E.W., Woodey T., Wohley K.C., Wu D., Yorkes D.,
RA Shillams S.M., Woodey T., Wohley K., Wu D., Yorkes H.,
RA Shore E., Spealing A.C., Staplecon M., Strong A.H., Wang X.,
RA Wang Z.-Y., Whyer S.W., Rubhn G.M., Wenter T.,
RA Relson D.R., Wers E.W., Rubhn G.M., Yenter J. C.,
RA Shore S., Stone S., Stablecon M., Strong A., Wenter B.W.,
RA Shore S., Stone S., Stablecon M., Strong A., Wenter S.,
RA Shore S., Stone S., Stablecon M., Strong A., Wenter J.C.,
RA Shore S., Stone S., Stablecon M., Strong 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         nu.
(Mouse-car cress)
itae; Embryophyta; Tracheophyta; Spermatophyta;
htvledons; core eudicots; Rosidae; eurosids II;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ouery Match 16, 194; Score 45; DB 5; Length 176; Best Local Shilarity 57.14; Pred, Mo. 48; Matches 12; Conservative 1; Mismatches 8; Indels Matches 12; Conservative 1; Mismatches 9; Indels Matches 15; Conservative 1; Mismatches 9; Indels Matches 15; Conservative 1; Mismatches 9; Indels Matches 15; Conservative 1; Mismatches 9; Indels 15; Conservative 1; Mismatches 15; Conservative 15; Conservat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OGUV78

COUTT COURT COUR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PS00061; ADE_SHORT; 1.
PS00237; G_PROTEIN_RECEPTOR; UNKNOWN_1.
176 AA: 18567 NW; 4F0DBEAAEA294324 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INTERPROCISE AD A SPARITY INTERPROCISE AD A SPARITY PORTRY PRINTER PROCOGNS, COMPONIE COMPONIE PROSITE; PSONOSI; ADM SHORT I PROSITE; PSONOSI; ADM SHORT INTERPROCIED AND A SPANOSIME 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MRVLVLALAVALAVGDGSNLG 21
| | | | | | | | | | | |
| MSVGVLAGKVALVTGAGSGIG 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-NOV-1999 (TERBLEAL 12, Created)
01-NOV-1999 (TERBLEAL 12, Last sequence update)
01-CCT-2000 (TERBLEAL 15, Last annotation update)
01-CCT-2000 (TERBLEAL 15, Last annotation update)
NICOLiana cabacum (Common tobacco).
NICOLiana cabacum (Common tobacco).
Bukaryota, VIIIdiplantae; Embryophyta; Tracheophyta; Spermatophyta;
Magnollophyta; eudicoryledons; core eudicots; Asteridae; euasterids I;
NCBL_TAXID-4097;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CG3663.
Drosophila melanogaster (Fruit fly).
Evesyota: Metazoa, Arthropoda; Tracheata; Hexapoda; Insecta;
Everyota: Mecptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDITES—20196006, PubMed-10731132, Adams M. A. Gocayne J.D., Adams M.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D., Amanticles P.G., Scherer S.E., Il P.W., Hoskins R.A., Galle R.F. George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
SPOURCE FROM N.A.
STRAIN-CV. SAMSON NN; TISSUE-TMV-INFECTED LEAF;
STRAIN-CV. ALMSON NN; TISSUE-TMV-INFECTED LEAF;
"CONA SEQUENCES for TWO NOVEL TODACCO PETOXIDASE ISOENZYMES.";
SUBMILICAC (MAY-1399) to the EMIL/GenBank/DDBJ databases.
HSSP; P00433; 2ANJ.
HSSP; P00433; 2ANJ.
                  85.4%; Score 82; DB 13; Length 1788; 95.0%; Pred. No. 0.0031; Lyye, 0; Mismatches 1; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 50.0%; Score 48; DB 10; Length 330; Best Local Similarity 42.9%; Pred. No. 34; Matches 9; Conservative 6; Mismatches 6; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Peroxidase, Oxidoreductase.
SEQUENCE 330 AA: 35731 MM; 2034ACB6376B6180 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               09M402 PRELIMINARY; PRT; 176 AA. 09M402; 01-MAY-2000 (TrEMBLFel. 13, Last sequence update) 01-MAY-2000 (TrEMBLFel. 13, Last sequence update) 01-CT-2000 (TrEMBLFel. 15, Last annotation update) CGSGGS PROFEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT; 330 AA.
PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q9XIV8
Q9XIV8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 3
099402
10 099402
099402
07 01-8AZ-
07 01-8AZ-
07 01-027-
07 01-027-
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
08 020503
```

Gaps

Length 691;

ò a

SORRTRAKA

```
RG STRAIN-BERKELEY;
RA Admas H. D., Celniter S. E., Holf R. A., Evans C.A., Gocayne J.D.,
RA Adman H. D., Celniter S. E., Holf R. A., Evans C.A., Gocayne J.D.,
RA Adman H. D., Celniter S. E., Holf R. A., Foskins R. A., Galle R. F.,
RA George R. A., Lewis S. E., Richards S., Ashumrer M., Henderson S. N.,
Sutton G.G., Wortnan J. R., Yandell N. D., Zhang Q., Chen L. X.,
Sutton G.G., Mortan J. R., Yandell M. D., Zhang Q., Chen L. X.,
RA Barndon R. C., Rogers Y. H. C., Blazer R. G., Champe W. P., Feiffer B. D.,
RA Barli J. F., Agbayani A., Baradle J., Barzel R. G., Nelson C. R., Miklos G. L. G.,
RA Ballew R. M., Baros P. V., Berman B. P., Bhandari D., Bolshakov S.,
RA Barli J. F., Agbayani A., Barush B. P., Bhandari D., Bolshakov S.,
RA Barli J. F., Benos P. V., Berman B. P., Bhandari D., Bolshakov S.,
RA Bartis K. G., Busam D. A., Butler H. Caddeu E., Center A., Chandra I.,
R. Cherry J. M., Cauley S., Dahlec C., Davenport L. B., Davies P.,
RA Cherry J. M., Cauley S., Dahlec C., Davenport L. B., Davies P.,
RA Duchin R. D., Bronnes H., Dugan-Rochas S., Dunkow B.,
RA Duchin R. J., Barvey D., Leina R., Gulan P., Harris M.,
RA Godek K., Gong F., Gorrell J. H., Gulan P., Harris M.,
RA Ralush F., Kodira C. D., Kerfic C., Kravitz S., Kulp D., Lai Z.,
RA Randel B. E., Kodira C. D., Karfi C., Kravitz S., Kulp D., Lai Z.,
RA Mannel H. E., Kodira C. D., Karfi C., Kravitz S., Kulp D., Lai Z.,
RA Mannel H. E., Kodira C. D., Karfi C., Kravitz S., Kulp D., Lai Z.,
RA Mannel H. E., Kodira C. D., Karfi C., Kravitz S., Kulp D., Lai Z.,
RA Mannel H. E., Rolishina N. W., Nobrett D., Woshreft I.,
RA Mount S. M., Nukroh B., Wurphy L., Wurny D. M., Netpherson D.,
RA Houston R., Dalay B., Nutrophy L., Wurny D. M., Netpherson D.,
RA Houlson D., Barland C. S., Pan S., Pollard J., Putt V., Neese M., G.,
Ra Plazzolo M., Pittand G. S., Pan S., Pollard J., Putt V., Neese M., G.,
Ra Rainert K., Remington K., Saunders R.D.C., Scheeler F., Shen H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OSVGD4 PRELIMINARY; PRT; 1718 AA.
OSVGD4
OSVGD4
OSVGD4
O1-MAY-2000 (TFEMELrel. 13, Created)
O1-MAY-2000 (TFEMELrel. 13, Last sequence update)
O1-MAY-2000 (TFEMELrel. 14, Last sequence update)
O1-MAY-2000 (TFEMELRel. 13, Created)
O1-MAY-2000 (TFEMERRel. 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match

46.94; Score 45; DB 3; Length 691

Best Local Similarity 64.34; Pred. No. 1.9e-02;

Matches 9; Conservative 2; Mismatches 3; Indels

Matches 9; Conservative 2; Mismatches 3; Indels
                                                                                                                                                                                                                                                                                                                                                                                        Rieger M. Lyre M. Rajandream M.A., Barrell B.G., submitted (CCT-1999) to the EMBL/GenBank/DDBJ databases. BMBL; AL121700; CAB57447.1; INTERFACE (FROMJS); FRAM: PFOD122; EL-EZ_APPase; 1.
                                                                        Schizosaccharomyces pombe (Fission yeast).
Bukarycta; Fungi; Ascomycota; Schizosaccharomycetales;
Schizosaccharomycetaceae; Schizosaccharomyces.
NCBL_TRAXID-4899;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  691 691 8275 MW; FOBSFEAAS753CC22 CRC64;
     PUTATIVE ATPASE (FRAGMENT).
SPAC821.13C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          362 LEKAVTLAIGDGAN 375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6 LALAVALAVGDGSN 19
                                                                                                                                                                                                                                                                  [1]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SECUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ·
•
                                                                                                                Tabata 3. Sequence 'Structural analysis of Arabidopsis thaliana chromosome 5. X. Sequence Structural of the regions of 3,076,755 bp covered by sixty Pl and TAC clones.'.
DIA Res.'. 7:31-63(2004)
EMBL: AB019235: BAA97312.1; -
SEQUENCE 262 AA; 28098 MW; 5CD397647893BAll CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 **Millon R., Alloscough R., Daynes C., Berks M., Wilson R., Alloscough R., Education R., Borfeld J., Burton J., Comell M., Copsey T., Cooper J., Coulson A., Craxton M., Dear S., Du Z., Durbin R., Favello A., Fulton L., Gardner A., Green P., Hawkins T., Hillier L., Jier M., Johnston L., Jones M., Kershaw J., Klisten I., Lister R., Johnston L., Lightning J., Lloyd C., Mamurray A., Mortimore B., O'Callaghan M., Earson S., Percy C., Rikhen L., Ropers A., Sanders D., Shownkeen R., Smaldon M., Santh A., Sonnhammer E., Staden R., Sulston J., Thomas K., Waudin M., Vaughan K., Waterston R., Wateson A., Weinstock L., Hilkinson-Sproat J., Wohldman P.; The Crystogram R., Wateson A., Weinstock L., Hilkinson-Sproat J., Wohldman P.; The Crystogram R., Wateson P., Wohldman P.; The O'C contiguous nucleotide sequence from chromosome III of C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              T23F1.6.
T23F1.6.
Eukarota Metazoa, Mematoda; Chromadorea; Rhabditida; Rhabditoldea; Rhabditidee; Peloderinae; Caenorhabditis.
NHADGILidae; Peloderinae; Caenorhabditis.
STRAIN-COLUMBIA;
Sato S., Nakamura Y., Kaneko T., Katoh T., Asamizu E., Kotani H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 45; DB 10; Length 262;
Pred. No. 72;
4; Mismatches 3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ouery March
65.94; Score 45; DB 5; Length 330;
Best Local Smillarity 45.04; Pred. No. 90;
Matches 9; Conservative 5; Mismatches, 6; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Wilkinson J.;
Submitted (OCT-1996) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   elegans ";
Nature 568:32-38(1994),
Embt. 20129, CAB03405.1; -
SEQUENCE 330 AA: 36605 WW; F043B1A90D3A8FE9 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               018118;
01-7AN-1998 (TEMBLER). 05, Created)
01-7AN-1998 (TEMBLER]. 05, Last sequence update)
01-JAN-1999 (TEMBLER]. 09, Last annotation update)
T23F1.6 PROFEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 090743 PRELIMINARY, PRT; 691 AA.
09743.
01-AAY-2000 (TFEMELLE1, 13, Created)
01-AAY-2000 (TFEMELLE1, 13, Last sequence update)
01-QAY-2000 (TFEMELLE1, 14, Last semocration update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT; 330 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
MEDLINE-94150718; Pubmed-7906398;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 MRVLVLALAVALAVGDGSNL 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 ::: ||||| |::
1 MRCVILLFAVALAVAQASSI 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity 56.2%;
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4 LVIALAVALAVGDGSN 19
|:: || |:||:||!
82 LEIMAAVLLSVGEGSN 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 6
Q9UT43
ID Q9UT43;
AC Q9UT43;
DT 01-MAY-
DT 01-JUN-
DT 01-JUN-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             018118
```

ò

```
Rukaryota: Metazos; Chordata; Craniata; Vertebrata; Euteleostomi;
Manalis: Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
NeBL_marib_10990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Thermus aquaticus (subsp. thermophilus).
Bacteria: Thermus/Delnococcus group: Thermus group; Thermus.
NCBI_TAXID-274;
                                                                                                                                                                                                P96493 PRELIMINARY, PRT, 333 AA.
P96493 PRELIMINARY, PRT, 333 AA.
P96493 PRELIMINARY, PRT, 333 AA.
P96493 PREMINER. 03, Created)
10-HAY-1997 (TREMELRE). 13, Last sequence update)
10-HAY-2000 (TREMELRE). 13, Last annotation update)
PUTAY-TE GLYCIRE DEPREMOXFLARE, PRECARBOXYLATING) SUBUNIT 1
(GLYCINE CLEAVAGE SYSTEM P-PROTEIN) (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     O9ROG6 PRELIMINARY; PRT; 755 AA.
O9ROG6.
O1-MAY-2000 (TEMBLrel. 13, Created)
O1-MAY-2000 (TEMBLrel. 13, Last sequence update)
O1-COT-2000 (TEMBLrel. 13, Last sequence update)
CATTLAGE OLIGOMERIC MATRIX PROFEIN PRECURSOR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 45.8%; Score 44; DB 2; I Best Local Similarity 60.0%; Pred. No. 1.3e+02; Matches 9; Conservative 2; Mismatches 4;
        7 ALAVALAVGDGSNLG 21
| | :||||| :|||
| AKGVDIAVGDGQSLG 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A. STRAIN-HB27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
TISSUE-CARTILAGE;
                                                                                                                                      RESULT 9
10 996493
AC 096493
DT 01-MAY.
DT 01-MAY.
DE CCC 11-MAY.

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 10
09R0G6
AC 09R0G6;
DT 01-MAY-
DT 01-OCT-
DE CARTILA
OS MUS MUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
Shue B.C., Siden-Klamos I., Simpson M., Skupski M.P., Smith T.,
Sprer E., Spradling A.C., Stepheton M., Strong K., Sun E.,
Svirska R., Tector C., Turner R., Venter E., Wang A.H., Wang X.,
Wang Z. T., Wassarman D.A., Wenfer E., Wang A.H., Wang X.,
Williams S.H., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A.,
Williams S.H., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A.,
Zheng X. H., Zhong W., Zhou W., Zhun G., Zhao Q., Zheng L.,
Zheng X. H., Zhong W., Zhou X., Zhu S., Sinth B.O.,
The genome sequence of Drosophila melanogaster.";
PMELS, Reponds S. Amery449 II.
The genome Sequence of Drosophila melanogaster.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6; Gaps.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SIGNE-20056996; PubMed-10567266; White-Ai, Bishey B.R., Peterson J.D., Podson R.J., Hafdelberg J.F., Hickey B.R., Peterson J.D., Dodson R.J., Haft D.H., Gwinn M.L., Nelson W.C., Richardson D.L., Womchfork K.S., All M. Jang L., Pamphile W., Crosby M., Shen M., Vanchevan J.J., Lam P., McDonald L., Otterback T., Zalewski C., Makarova K.S., Aravind L., Daly W.J., Minton K.W., Fleischmann R.D. Ketchum K.A., Nelson K.E., Salzberg S., Smith H.O., Venter J.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Deinococcus radiodurans
sateria: Thermus/Deinococcus group; Deinococcales; Deinococcus.
NCBI_TAITO-1299;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tennome Sequence of the Radioresistant Bacterium Deinococcus radiodurans R1.;
radiodurans R1.;
REGEL 286.1571-1577(199).
REGEL AR002091; AR12158.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 1718;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 328;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ouery Match 45.8%; Score 44; DB 2; Length 328
Best Local Similarity 52.6%; Pred. No. 1.2e+0;
Matches 10; Conservative 3; Mismatches 6; Indels
                                                                                                                                                                                                                                                                                                                                                                              FITBASE; FBGG0037989; CG14741;
INTERPO: IRROUGG51;
- PERA! FPG0012; EL-2_APPSS, 3.
PERAS; PR0012; EL-2_APPSS, 3.
PRINTS; PR00119; CARNEASE.
PRINTS; PR00119; CARNEASE EL S.
SEQUENCE 1718 AA: 192415 MM; EE033FIEE5CF480B CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INTERPRO; IPRO01106; -
pFAM; PR01210; MAD_G13P_dh; 1.
PRINTS; PR00077; GPDHDKGNASE.
PROSITE: PS000315; NITCOL_CARRIES; UNKNOKN_1.
SEQUENCE 328 AA; 33597 WW; 46D909D7D14170BE CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Olanko,
Olanko,
Mark 2000 (TrEMBLE). 13, Last sequence update)
Ol-JUN-2000 (TrEMBLE). 14, Last annotation update)
GLYCEROL-3-PHOSPHATE DEHYDROGENASE, NAD(+)-DEPRODENT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 46.9%; Score 45; DB 5; Best Local Similarity 45.8%; Pred. No. 4.7e+02; Matches 11; Conservative 4; Mismatches 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT; 328 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QY 2 RVLVLAL-----AVALAVGDGSN 19
: ||: | || ||:||:|
DD 1270 KALVVELIKRAKNAVTLAIGDGAN 1293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EQUENCE PROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q9RR76 ·
```

3 VLVLALAVALAVGDGSNLG 21

Length 333; 4; · Indels

```
STRAIN-316;

X MEDIAN-25078460; Pubmed-7987012;

X Murphy J.P., Trovern A.R., Duggleby C.J.;

RT Murphy J.P., Trovern A.R., Duggleby C.J.;

RT Seq. 4:155-155(1934);

DR Seq. 4:155-155(1934);

R RISEP, DG111, 1GAB.

DR INTERRPO: IRR001989;

DR INTERRPO: IRR001989;

DR RYPRERPO: IRR001989;

DR PRAH; PF00146; Gram_Dos_anchor; 1.

DR PFAH; PF01468; GA; 4.
                                        Townsend S.M., Tsolis R.M., Adams L.G., Ficht T.A., Baumler A.J.; Distribution of bef operon in Salmonella enterica.'; Submitted (FEB-1999) to the EMEL/GenBank/DDBJ databases. EMEL, ARI30423. AAD31972.1; FBEEL, ARI30423. AAD31998.1; INTERPRO; IRR00015. PROMETY: PROMETY: CROMETY: CR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Peptostreptococcus magnus.
Bacteria, Firmicutes; Bacillus/Clostridium group; Clostridiaceae;
Peptostreptococcus.
NCHL_PaxID-1260;
                                                                                                                                                                                                                                                                                                                                                                                                                       Length 870;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
65.8%; Score 44; DB 2; Length 992;
Best Local Similarity 50.0%; Pred. No. 3.78-07;
Matches 9; Conservative 5; Wismatches 4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                            Ouery Match
45.8%; Score 44; DB 2; Length 870
Best Local Similarity 72.7%; Pred. No. 3.34-02;
Matches 8; Conservative 2; Hismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STĞNAL 1 24 POTENTIAL.
CHAIN 5. 992 PROTEIN L.
CHORENCE 992 AA, 1006699.MN; 9CFE731578A5DCE CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         051918 PRELIMINARY, PRT; 992 AA. 051918, 051918, 01-051918, 01-NOV-1996 (TrEMBLrel. 01, Created) 01-NOV-1996 (TrEMBLrel. 01, Last sequence update) PROTEIN L PRECURSOR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  090280 PRELIMINARY: PRT: 1108 AA. 090280 090280: 01-74AY-2000 (TERMELTE1. 13, Created) 01-007-2000 (TERMELTE1. 15, Last sequence update) 01-007-2000 (TERMELTE1. 15, Last annotation update) 749E10.11. PROFEIN. 15, Caenorhabditis elegans.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2 RVLVLALAVALAVGDGSN 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6 KLLMAALAGAIVVGGGAN 23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    418 ALAIGSGANLG 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11 ALAVGDGSNLG 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 13
Q51918
ID Q51918
AC Q51918;
DT 01-NOV-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 14
090280
ID 090280
AC 090280
DT 01-0CT-
DT 01-0CT-
DT 01-0CT-
DT 749E10
GR Y49E10
OS CAenorl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                    0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Caenorhabditis elegans.
Bukaryota: Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea; Rhabditidae; Peoderinae; Caenorhabditis.
WSL_TaxID-6239;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GOGDROGE FROM N.A.
STRAIN-CB1469 HH-8(E1489);
Hallock H.S., Pradhan D., Blackman C., Berkes C., Williamson P.L.,
Schogel R.A.;
Genome Res. 0:0-0(1998).
Genome Res. 0:0-0(1998).
INTERRON: PROOJATST, 1-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN-ATCC 14028;
STRAIN-ATCC 14028;
TSOILS R.M., Forwsend S.M., Ficht T.A., Adams L.G., Baumler A.J.;
Attenuation in mice does not predict the ability of Salmonella
                                        POTENTIAL.
CARTILAGE OLIGOMERIC MATRIX PROTEIN.
7DDFCF443589A0B7 CRC64.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Salmonella typhlmurium
Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
Salmonella
KBL_TaxiD=602;
                                                                                                                                                                                                       Query Match 45.8%; Score 44; DB 11; Length 755; Best Local Similarity 66.7%; Pred. No. 2.8e-02; Matches 10; Conservative 1; Hismatches 4; Indels Matches 10; Conservative 1; Hismatches 4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Outery Match 45.87; Score 44; DB 5; Length 815; Best Local Similarity 64.38; Pred No. 3.18-40.2; Matches 9; Conservative 2; Mismatches 3; Indels Matches 9; Conservative 2; Mismatches 3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              typhlmurium mutants to cause enteritis.";
Submitted (FEB-1999) to the EMBL/GenBank/DDBJ databases.
[20]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE 815 AA; 91486 MW; D5B54ED4BDFDF232 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    044385 PRELIMINARY, PRT; 815 AA. 044385, 01-4385, 01-50N-1998 (TERBELTE) 66, Created) 01-50N-1998 (TERBELTE) 66, Last sequence update) 01-CCT-2000 (TERBELTE). 15, Last annotation update) PUTATIVE E1 E2 ATPASE (FRAGHENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          090W45 PRELIMINARY; PRT; 870 AA. 090W45: 01-NOV-1999 (TrEMELREI. 12, Created) 01-NOV-1999 (TrEMELREI. 12, Last sequence update) 01-NOV-1999 (TrEMELREI. 14, Last annotation update) FIFRRIAL USHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PENN; PP00122; E1-E2_ATPase; 4.
PRINTS; PR00119; CATATPASE.
PROSITE: PS00154; ATPASE_E1_E2; UNKNOWN_1.
Signal; Matrix protein.
SiGNAL 1 19 PC
CHAIN 20 755 C
SEQUENCE 755 AA; 82352 HW;
                                                                                                                                                                                                                                                                                                                                          3 VLVLALAVALAVGDG 17
                                                                                                                                                                                                                                                                                                                                                                                   1111111: 1 1 1 7 VLVLALAILRATGGG 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6 LALAVALAVGDGSN 19
    3 F F S
                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
```

```
ANAERA, IRANG, IRANG, BL. EZ, ATRASE, 3.
PRINTS; PRO012; CATARPASE,
PROSITE; PRO0119; CATARPASE, E.2. 1.
PROSITE: 1297 AA: 147293 WH; BIIED6E75B4D9D8A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 45.8%; Score 44; DB 5; .
Best Local Similarity 72.7%; Pred. No. 4.9e+02;
Matches 8; Conservative 2; Mismatches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Search completed: May 3, 2001, 15:52:43
Job time: 62 sec
                                                                                                                                                                                                                                              "The genome sequence of Drosop Science 287:2185-2195(2000). EMBL; AE003818; AAF58378.1; -- HSSP; Q41261; 1000. PLYBASE; FBGN0033837; CG17034.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9 AVALAVGDGSN 19
|| ||:|||:|
|843 AVTLAIGDGAN 853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          රු පු
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Admas W.D. Celoineer S.E. Liel R.A., Evans C.A., Gocayne J.D.,
Admans Hold, Celoineer S.E. Liel R.A., Evans C.A., Galle R.F.,
A damanatides P.G., Scherer S.E., Liel P.W. Hoskins R.A., Galle R.F.,
George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
R. Sutton G.G., Wortman J.R., Yandell M.D., Lahng O., Change R.P.,
Brandon R.C., Rogers Y.-H.C., Blazel R.G., Change M., Pfefffer B.D.,
R. Man K.H., Doyle C., Barter E.G., Belt G., Nelson C.R., Miklos G.L.G.,
Abrill J.F., Agbayoni A.M. H.G., Andrews-Pfannkoof, Baldwin D.,
Rallew R.M., Basus M. A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
Baltew R.M., Basus B. P., Mandari D., Bolinakov S.,
Borkova D., Bocchan M.R., Bouck J., Brokstein P., Brottler P.,
An Burtis K.C., Busam D.A., Buller H., Cadleu E., Center A., Chandra I.,
An Cherry J.W., Cawley S., Dahlke C., Davenport L.B., Davles P.,
An Cherry J.W., Cawley S., Dahlke C., Davenport L.B., Davles P.,
An Durbin K.J. Brangelista C.C., Ferraz C., Ferriers S., Fleischmann W.,
An Godson K.A., Gong P. Correll J.H., Gu S., Gulan P., Harris M.,
An Harris M.L., Harvey D., Heiman T.J., Henland T.J., Weil M.-H., Ibegwam C.,
An Jalali M., Kalush F., Kaupen G.H., Kalls, Kellson M., Harris M.,
An Lasto P., Led L. Kalush F., Kaupen G.H., Kallson M., Lin X.,
An Harris M.L., Linker C.D., Kraft C., Kravitz S., Kalp D., Lin X.,
An Harris M.L., Linker M., Androfer M., Morberson M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COINO34.
DIOSOPILIa melanogaster (Fruit fly).
BIOSOPILIa melanogaster (Fruit fly).
BIOSOPILIa melanogaster (Fruit fly).
PLENGYOLA: Melazoa, Arthropoda; Tracheata; Hexapoda; Insecta;
PLENGYOLA: Meoptera; Endopterygota: Diptera; Brachycera; Muscomorpha;
Ephydroidas; Drosophilidae; Drosophila.
Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea;
Rhabditidae; Peloderinae; Caenorhabditis.
NCBL_TaxID=6239;
                                                                                                                                                                                                                                                                                                                                                            IMPERPRO; IPRO01195; -CATAPASE,
PROSTITE, PRO01195; ATPASE EL E2; UNKNORN I.
SEQUENCE 1001194; ATPASE EL E2; UNKNORN I.
SEQUENCE 1108 AN; 124665 MM; 298F102744199E2A CRC64;
                                                                                                                                                                                                  Barlow K.;
Submitted (AUG-1997) to the EMBL/GenBank/DDBJ databases.
BEBL: 288665; CAB11550.3; -.
INTERPRO; IPRO00345; -.
INTERPRO; IPRO01157; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-MAY-2000 (TERMBLrel. 13, Created)
M-MY-2000 (TERMBLrel. 13, Last sequence update)
01-0CT-2000 (TERMBLrel. 15, Last annotation update)
CG17034 PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 45.8%; Score 44; DB 5; i
Best Local Similarity 64.3%; Pred. No. 4.2e+02;
Matches 9; Conservative 2; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
```

õ

em_ov:*

Run on:

```
Result
                                                                                              5, 2001, 21:23:56; Search time 1035.58 Seconds (without alignments) 1139.293 Million cell updates/sec
                                                                                                                                                                                                   1 attcacatccaccagccatg......gggaccagtccaacttgggg 80
                                                                                                                                                                                                                                                                                                                             2566470
GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                        1283235 seqs, 7373929652 residues
                                                                                                                                                                                                                                                                                                                                                                                                            Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                 OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                       IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                   US-09-426-776-11
80
                                                                                                                                                                                                                                                                                                                                                         Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Jb_in2:
Jb_in3:
gb_om:'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             b_pat1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GenEmbl:
                                                                                                   Мау
                                                                                                                                                                 Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                    Scoring table:
                                                                                                                                                                                                                                                                                      Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Database
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Description	AF017250 Oreochrom	AF072686. Oreochrom	U70826 Fundulus he	AC004221 Homo sapi	AL137301 Homo sapi	AK023132 Homo sapi	AK024508 Homo sapi	AL118506 Human DNA	AC068717 Homo sapi	AR070469 Sequence	7 00000000 001111
OI	AF017250	AF072686	FHU70826	AC004221	HSM801971	AK023132	AK024508	HSJ591C20.	AC068717	AR070469	147708
DB	. &	æ	æ	82	92	8	8	92	74	6	0
Match Length DB ID	5511	69.8 11453 8 A	5166	42805	945	4214	4813	139505	153713	10807	10807
Match	92.5	8.69	54.2	36.2	36.0	36.0	36.0	36.0	35.8	35.5	35
Score		55.8									
No.	T	7	m	C 4	Ŋ	9	7	ဆ	ნ ე	10	11

em_hum7: em_in:* em_om:* em_or:*

ACO10920 Drosophil S66686 n-syb-wamp ACO18231 Drosophil AEO003472 Drosophil ACO05557 Drosophil ACO0568 Sequence I 43695 Sequence 29 M32233 Ovine mRNA ARO02668 Sequence 29 M32233 Ovis aries ACO15633 Homo sapi ALO22721 Human DNA U60315 MOLIUscum c ALA513014 Human DNA U60315 MOLIUscum c ALA513014 Human DNA UA1513014 Human DNA UA2513012 Homo sapi AL359312 Homo sapi AL359312 Homo sapi AL359312 Homo sapi AL359314 Homo sapi ACO68255 Homo sapien AXO26417 Sequence D13434 Homo sapien AXO26417 Sequence D13434 Homo sapien AXO26416 Sequence D13434 Homo sapien AXO26416 Sequence D13543 Homo sapien ACO09946 Homo sapien	VRT 05-JAN-1999 In precursor (Vtg1) mRNA, complete Craniata; Vertebrata; Euteleostomi; Teleostei; Euteleostei; Neoteleostei; 1; Percomorpha; Perciformes; comis. I.L. Iromis aureus Vitellogenin cDNA and its I.L. I of Biological Sciences, National cent Ridge Crescent 119260, Singapore is aureus" 1-induced adult"
62 AC010920 6 S66686 6 S66686 7 S66886 7 AC005557 7 AAC0023472 7 AALS0128 10 143695 10 143695 7 SHPBLGA1 7 AC015633 10 143695 7 SHPBLGA1 7 AC015633 81 AL450163 82 AL513014 82 AL513014 83 ALCS0417 93 AC06825 7 SSC211829 84 AL513014 85 AC010616 86 AF26175 87 AC020956 87 AC020956 87 AC020956 87 AC020956 88 AC010616	mis aureus vitellogenin precursor 1. GI:4102880 mis aureus. mis aureus. mis aureus. mis aureus. mis hetazoa; Chordata; Craniata; Ve- erygii; Neopterygii; Teleostei; Er orpha; Acanthopterygii; Percomorplist Cichildae; Oreochromis. is (1childae; Oreochromis aureus) fof Full-Length Oreochromis aureus primary Structure primary Structure primary Structure primary Structure is 1 to 5511) ibmission ibmissio
35.5 172815 35.2 146271 35.2 146271 35.2 257867 35.2 257867 34.5 785 34.5 785 34.5 62838 34.0 110245 34.0 110245 34.0 110289 34.0 110289 34.0 110289 34.0 110289 34.0 110289 34.0 110289 34.1 1769 33.8 144096 33.8 122044 33.8 122044 33.5 4248 33.5 4248 33.5 151802 33.5 151802 33.5 151802 33.5 151802 33.5 151802 33.5 151802 33.5 151802 33.5 151802 33.5 151802	AF017250 5511 bp mRNA Oreochromis aureus vitellogenin AF017250. AF017250.1 GI:4102880 Oreochromis aureus. Idharotatis Neopterygii; Lim.E.H., Lam.T.J. and Ding.J.L. Clonain of Full-Length Oreochromis of Pallary Structure Unpublished Unpublishe
C 113 28.4 116 117 118 118 118 118 118 118 118 118 118	RESULT 1 APOLT250 LOCUS DEFINITION Ore CdS ACCESSION AFO VERSION AFO VERSION AFO NEWWORDS ONGANISM ORE ONGANISM ORE ACA ACA ACA ACA ACA ACA ACA ACA ACA AC

```
/translation="MRVLVLALAVALAVGDQSNLAPGFASVKTYMYKYEAVLMGGLPE
                                                                                                                                                                                                                                 EGLARAGVKIRGKVLISATSANDYILKLVDPOLLEYSGIWPKDPPHPATKLTTALATO
LSTPIKFEYTNGVVGRLAAPPGVSTTVLNIYRGIINLLQLNVKKTQNVYEMQESGAHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                rtegiqeallkrrhensenadritkikqamralsewranpssqalasmyvkvfgqeia
                                                                                                                                                                                                                                                                         VCKTNYVIREDARAERIHLTKTKDLNHCQEKIMKAIGLEHVEKCHDCEARGKSLKGTA
                                                                                                                                                                                                                                                                                                                                                                                          RVPLKVQVDAVLALRRIAKREPKMYQEIAAQĹLMEKHLHAELRMVAAMVLFETKLPVG
                                                                                                                                                                                                                                                                                                                                                                                                            LAASISTALIKEKNLOVVSFVYSYMKAMAKTTSPDHVSVAAACNVALRFLINPKLGRLN
                                                                                                                                                                                                                                                                                                                                                                                                                                FRYSRAFHVDTYNNAWMMGAAASAVLINDAATVLPRMIMAKARTYMAGAYVDAFEVGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FANIDKSKVDQLIQFASGPLRNVFRDAVNSVLSGYATHFAKPMLLGELRLILPTTVGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GVNTALIQAAVMTKAKVYTAVPAQIKARIDIVKGNLKVEFLSLQGINTIASAHAETVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KIGRKMKLPKTYRKKIRASSRMLGFKAYAEIESHNAAYIRDCPLYALIGKHAASVRIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PVLQCLPGCIPVRTTTVNVGFHCLPSDTTVDRSGLSSFFEKSIDLRDTAEAHLACRCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PASGPVIEKIEVEIQVGDKAAENMIKAIDMSEEEEALEDKNVLLKIKKILAPGLKNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29-NOV-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   62. .5377

/gene="vtg1"

/groduct="vitellognein"

3x69. .3946

/gene="vtg1"

/note="encodes putative phosvitin domain"

/gene="vtg1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ouery Match 92.5%; Score 74; DB 8; Length 5511; Best Local Similarity 100.0%; Pred. No. 7.7e-15; Matches 74; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /RTPSEQVTKDAISYAHSWVLSSNTCRDPSECS1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1299 g
                                                                                                                                    /codon_start=]
                                                          "Vtg1"
                                                                                                /gene="Vtg1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11453 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1443 C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AF072686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                    sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       polyA_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3'UTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT AF072686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δŏ
```

```
6462. .6612,6694. .6910,7017. .7744,7834. .7878,7957. .8025,
8117. .8323,8407. .8549,8736. .8874,8978. .9107,9224. .9407,
9497. .9591,9686. .9780,9906. .10071,10213. .10374,
                                                                                                                                                                 /product="vitellogenin"
/protein_id="AAD48085.1"
/bcrtein_id="T725516"
/translation="WRVVLVLAAVALAVGDQSNLAPGFASVKTYMYKYEAVLMGGLPE
/franslation="WRVVLVLAAVALAVDPQLLEYSGIWPKDPFHPATKLTTALATQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RTEGIQEALLKRRHENSENADRITKIKQAMRALSEWRANPSSQALASMYVKVEGQEIA
FANIDKSKVDQLIQFASGPLRNVFRDAVNSVLSGYATHFAKPMLLGELRLILPTTVGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GVNTALIQAAVHTKAKVYTAVPAQIKARIDIVKGNLKVEFLSLOGINTTASAHBETVA
IARNVEDLPAARSTPLISSETASQLSKASLNSKISRMASSYTGGMSASSEIIPADLPS
KIGRKMKLPKTYRKKIRASSRMLGFKAYAEIESHNAAYIRDCPLYALIGKHAASVRIA
                                                                                                                                                                                                                                                                                                LSTPIKFEYTNGVVGRLAAPPGVSTTVLNIYRGIINLLOLNVKKTONVYEMQESGAHG
VCKTNYVIREDARAERIHLTKTKDLNHCQEKIMKAIGLEHVEKCHDCEARGKSLKGTA
                                                                                                                                                                                                                                                                                                                                                   SYNY IMKPAPSGSLIMEAVAREVIEFSPFNIINGAAQMESKQILFFLDIENTPVDHAR
YTYVHRGSLQYEHGSEILQTPIHLLRVTHAEAQIVSTLNHLVASNVAKVHEDAPLKFV
                                                                                                                                                                                                                                                                                                                                                                                                                             TEAAMALLECLHSVTADQKTIELVRSLAENHRVKRNAVLNEIVMLGWGTVISRFCKAQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                        PSCSSDLVTPVHRQVAEAVETGDIDQLTVTLKCLDNAGHPASIKTIMKFLPGFGSAAA
RVPLKVQVDAVLALRRIAKREPKMVQEIAAQLLMEKHLHAELRWVAAMVLFETKLPVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LAASISTALIKEKNLQVVSFVYSYMKAMAKTTSPDHVSVAAACNVALRFLNPKLGRLN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FH070826 5166 bp mRNA VRT 18-OCT-1996
Fundulus heteroclitus vitellogenin II precursor mRNA, complete cds.
070826.1 GI:1621358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FRYSRAFHVDTYNNAWMGAAASAVLINDAATVLPRMIMAKARTYMAGAYVDAFEVGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PMEISLITSAVTAASVDVQATVSPPLPVNYRVSQLLESDIQLRATVAPSLAMQTYAFM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PASGPVIEKIEVEIQVGDKAAENMIKAIDMSEEEEALEDKNVLLKIKKILAPGLKNTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NSSSSSASYLLSSSKRRSRSSSSSSSSSSSSSSSSSSSSKNSKRSKSSNSKSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KLMAKTAWGAECKQYSTMIVAETGLLGHEPAARLKLTWDKLPGSIKHYAKRALKSIVP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          [AQEYGVNYAKAKNPRNQIKLTVAVATETSMNIVLNTPKAIVYKRGVCLPVALPIGNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FPELKFMVLLKKDQIQDQNQINVKISDIDVDMYRKNNAIAVMVNGVEIPNSNLPYLHP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SGNIHIRQSNEGITLNAPSHGLQEVFLGFNELRVKVADWMKGKTCGACGTASGNVGDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               // RTPSEQVTKDAISYAHSWVLSSNTCRDPSECSIKQESVKLEKRVIFEGVESKCYSVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PVLQCLPGCIPVRITIVNVGFHCLPSDTTVDRSGLSSFFEKSIDLRDTAEAHLACRCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAELQATRDNWADKMSYLVTKANAVECSLINNTLTTFNNRKARDELPHSCYQVLAQDC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SSRSSRRSAQSKQQLLALKFRKNHVHRHAISTQRGSSHSSARSFDSIYNKAKYLANT
                                                                                                                 /note="phospholipoglycoprotein; yolk protein precursor"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2072. .2084
/note="estrogen response element (ERE); imperfect ERE"
/bound_molety="estrogen receptor protein"
1051. .10670
1065. .10670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 11453;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 55.8; DB 8; Pred. No. 1.2e-08; 0; Mismatches 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           739. .10744
2463 c 2285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 69.8%;
Best Local Similarity 89.6%;
Matches 60; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1738 TAGGAAT 1744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3340 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  killifish
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gaccagt 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      polyA_signal
polyA_site
polyA_signal
BASE COUNT 3340
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 3
FHU70826
LOCUS
DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3'UTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          οy
                                                                                                                                                                                                                                                                                                                                                                                                                                     2 (bases 1 to 11453)
Teo.b.Y., Lim,E.H. and Ding,J.L.
Direct Submission
Submitted (18-JW-1998) Department of Biological Sciences, National University of Singapore, 10 Kent Ridge Crescent, Singapore 119260,
                                                                                                                            Oreochromis aureus
Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
Acanthomorpha; Acanthopterygii; Percomorpha; Perciformes;
Labroidei; Cichlidae; Oreochromis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="estrogen response element (ERE); imperfect ERE"
/bound_moiety="estrogen receptor protein"
353. .358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Join 1678. 1732,2065. 2085,2193. 2344,2441. 2692,2793. 2254,3044. 3192,3280. 3430,3519. 3576,3755.4000. 4125,4211. 4429,4538. 4755,4850. 4947,5035.528. 5392,5502. 55621,5709. 5892,5990. 6083,6177.6462. 6612,6694. 6910,7017. 7744,7834. 7878,7957.8117. 8323,8407. 8549,8736. 8874,8978. 9107,9224.9497. 9591,9686. 9780,9906. 10071,10213. 10374,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1146. .1158
/note="estrogen response element (ERE); imperfect ERE"
1200. .1205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1693. 1732, 2065. 2085, 2193. . 2344, 2441. . 2692, 2954, 3044. . 3192, 3280. . 3430, 3519. . 3676, 3755. . 4125, 4211. . 4429, 4538. . 4755, 4850. . 4947, 5035. . 5392, 5502. . 5621, 5709. . 5892, 5990. . 6083, 6177.
                                                                                                                                                                                                                                                           1 (bases 1 to 11453)
Teo.B.Y., Tan.N.S., Lim.E.H., Lam.T.J. and Ding,J.L.
A novel piscine vitellogenin gene: structural and functional
analyses of estrogen-inducible promoter
Mol. Cell. Endocrinol. 146 (1-2), 103-120 (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Singapore
On Nov 29, 1999 this sequence version replaced gi:1771394
gi:1771393 gi:1771392 gi:1403509.
Location,Qualifiers
             complete cds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1. .11453
/organism="Oreochromis aureus"
/db_xref="taxon:47969"
/clone="Oavg1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /tissue_type="blood"
/dev_stage="adult"
1. 1677
141 . 146
/note="GATA binding site"
/bound_moiety="GATA factor"
       Oreochromis aureus vitellogenin gene,
AF072686 X93569 X93570 X93571 Z71336
AF072686.1 GI:5725515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'note="GATA binding site"
'bound_moiety="GATA factor"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="GATA binding site"
/bound_molety="GATA factor"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="GATA binding site"
/bound_moiety="GATA factor"
1001. .1006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="GATA binding site"
/bound_moiety="GATA factor"
1146. .1158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="Gara binding site"
//bound_moiety="GATA factor"
1649. .1655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'product="vitellogenin"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      106901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     oin(1693.
                                                                                                       Oreochromis aureus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10471.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TATA_signal
5'UTR
mRNA
                                                                            KEYWORDS
SOURCE
ORGANISM
DEFINITION
ACCESSION
VERSION
                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                        JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
```

ö

ö

ORGANISM

REFERENCE AUTHORS REFERENCE AUTHORS

TITLE

JOURNAL

TITLE

REFERENCE AUTHORS

JOURNAL

JOURNAL

```
Direct Submission
Submitted (03-AUG-2000) DOE Joint Genome Institute, Lawrence
Submitted (03-AUG-2000) DOE Joint Genome Institute, Lawrence
Livermore National Laboratory, Livermore, 69 4556.
On Aug 3, 2000 this sequence version replaced gi:2911257.
Map and sequence oriented from p-telomere to centromere. Bases
1-1791 from PCR product; bases 1385-42805 from clone R29144. Thist
sequence overlaps cosmid R30295 (LINLR-264DI, ACC011544) on the left
from bases 1 to 281 of this accession and overlaps cosmid R33114
(LLNLR-293GIO, ACC04258) on the right from bases 4053 to 42805 of
this accession. Additional chrl9 map and sequence information are
available at: http://www-bio.llnl.gov/bbrp/genome/genome.html.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Lamerdin, J.E., McCready, P.M., Skowronski, E., Adamson, A.W.,
Burkhart-Schultz, K., Gordon, L., Kyle, A., Ramirez, M., Stilwagen, S.,
Phan, H., Velasco, N., Garnes, J., Danganan, L., Poundstone, P.,
Christensen, M., Georgescu, A., Avila, J., Liu, S., Attix, C.,
Andreise, T., Trankheim, M., Amico-Keller, G., Coefield, J., Duarte, S.,
Lucas, S., Bruce, R., Thomas, P., Quan, G., Kronmiller, B., Arellano, A.,
Olsen, A.S. and Carrano, A.V.
Sequence analysis of a 3.5 Mb contig in human 19p13.3 containing a
Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Direct Submission
Submitted (25-FEB-1998) Joint Genome Institute, Lawrence Livermore
National Laboratory, 7000 East Ave., Livermore, CA 94551, USA
3 (bases 1 to 42805)
Lamerdin, J.E.
                                                     polyserine domain found in yolk proteins termed phosvitin and/or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 42805)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens DNA from chromosome 19, cosmid R29144 (LLNLR-252D12) and overlapping PCR product, complete sequence.
                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                /cell_line="SHL2-B"
/clone_lib="LL19NCO3 R chromosome 19-specific cosmid
                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                        Length 5166;
                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /map="19p13.3 between CDC34 and D19S342"
/clone="R29144"
                                                                                                                                                                                                                                                                Score 43.4; DB 8;
Pred. No. 0.00019;
0; Mismatches 16;
                                                                                                                                                           1220 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Homo sapiens"
/db_xref="taxon:9606"
                3235. .3660
/note="encodes Vtg
phosphoserine rich
                                                                                                                                                     1228 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /chromosome="19"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AC004221.2 GI:9665053
                                                                                                  phosvettes"
5135. .5140
a 1358 c ]
                                                                                                                                                                                                                                                                54.2%;
76.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2 (bases 1 to 42805)
Lamerdin, J.E.
                                                                                                                                                                                                                                                        Query Match
Best Local Similarity 76.8
Matches 53; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1. .42805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                           polyA_signal 5
BASE COUNT 1360 a
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           67 agtccaact 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             62 AGGTGAGCT 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AC004221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         human.
                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AC004221/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                     δλ
                                                                                                                                                                                                                                                                                                                                                                                                                        α
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /tissue_type="estrogen-induced liver"
13. .5076
/note="Vtg II; yolk protein precursor induced by estrogen;
mRNA levels 10-50 times less abundant than Vtg I mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Direct Submission
Submitted (15-SEP-1996) Whitney Laboratory and Dept of Anatomy and
Cell Biology, University of Florida, 9505 Ocean Shore Blvd, St.
Augustine, FL 32086-8623, USA
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LLTPVKFEYANGVIGKVFAPPGISTNVLNVFRGLLNMFQMNIKKTQNVYDLQETGVKG
                                                     Actinopterygii; Neopterygii; Teleostei; Buteleostei; Neoteleostei; Acanthomorpha; Acanthopterygii; Percomorpha; Atherinomorpha; Cyprinodontiformes; Fundulidae; Fundulus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         translation="MRVLVLALTVALVAGNOVSYAPEFAPGKTYEYKYEGYILGGLPE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VCKTHY I LHEDSKADRLHLTKTTDLNHCTDS I HMDVGMAGYTEKCAECMARGKTLSGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IELIQLLRVAKYESIEALWSQFKTKIDHRHWLLSSIPAIGTHVALKFIKEKIVAGEVT
AAEAAQAIMSSTHLVKADLEAIKLQEGLAVTPNIRENAGLRELVMLGFGIMVHKYCVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NPSCPSELVRPVHDIIAKALEKRDNDELSLALKVLGNAGHPSSLKPIMKLLPGFGSSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SELELRVHIDATLALRKIGKREPKMIQDVALQLFMDRTLDPELRMVAVVVLFDTKLPW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GLITTLAQSLLKEPNLQVLSFVYSYMKAFTKTTTPDHSTVAAACNVAIRILSPRFERI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SYRYSRAFHYDHYHNPWMLGAAASAFYINDAATVLPKNIMAKARVYLSGYSVDVLEFG
ARAEGVQEALLKARDVPESADRLTKMKQALKALTEWRANPSRQPLGSLYVKVLGQDVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FANIDKEMVEKIIEFATGPEIRTRGKKALDALLSGYSMKYSKPMSAIEVRHIFPTSLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LPMELSLYTAAVTAASVEVQATISPPLPEDFHPAHLLKSDISMKASVTPSVSLHTYGV
MGVNSPFIQASVLSRAKDHAALPKKMEARLDIVKGYFSYQFLPVEGVKTIASARLETV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AIARDVEGIAAAKVTPVVPYEPIVSKNATLNLSQMSYYLNDSISASSEILPFSLQRQT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GPSIERIEIEVQFGEQAAEKILKEVYLNEEEEVLEDKNVLMKLKKILSPGLKNSTKAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGLCGKADGEVRQEYSTPNERVSRNATSFAHSWVLPAKSCRDASECYMQLESVKLEKQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NWRICSDSMMLSHHKVMTRVTWGIGCKQYNTTIVAETGRVEKEPAVRVKLAWARLPTY
                                                                                                                                                                                                             Liver-derived cDNAs: Vitellogenins and vitelline envelope protein
                                                                                                                                                                                                                                                                                                                                                                           Derivation of occyte and egg proteins from parental vitellogenins
in Fundulus heteroclitus: sequence alignments reveal alternative
processing and a PEST site in the largest yolk protein
                                          Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (YP 69) that were experimentally
                                                                                                                                    1 (bases 1 to 5166)
LaFleur, G.J. Jr., Byrne, B.M., Haux, C., Greenberg, R.M. and
                                                                                                                                                                                                                                         precursors (choriogenins)
Int. Symp. Reprod. Physiol. Fish 5, 336-338 (1995)
2 (bases 1 to 5166)
LaFleur, G.J. Jr., Hoch, K.L., Denslow, N., Byrne, B.M. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3 (bases 1 to 5166)
LaPleur, G.J. Jr., Hoch, K.L., Denslow, N., Byrne, B.M. and
Fundulus heteroclitus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'note="encodes region of N-terminal amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="vitellogenin II precursor"
/protein_id="AAB17152.1"
/db_xref="GI:1621359"

    .5166
    /organism="Fundulus heteroclitus"
/db_xref="taxon:8078"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              kDa-yolk protein (YP 69) that wer
determined by Edman degradation"
58. .5073
/product="vitellogenin II"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DVSETAESHLACRCTPQCA
                                                                                                                                                                                          Wallace, R.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unpublished
                                                                                                                                                                                                                                                                                                                                                     Wallace, R.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Wallace, R.A.
```

source

CDS

FEATURES

misc_feature

mat_peptide

mRNA

CDS

```
overlapping ESTS:

(7033. .6813) W52571 zc45h09.rl Soares senescent fibroblasts Nhuser Home saptiens cDNA .6h0e 325313 5.

(45. .252); 90% identity. (6991. .6813) W52572 zc45h09.sl Soares senescent fibroblasts Nhuser Home saptiens cDNA clone 325313 5.

(45. .252); 90% identity. (6991. .6813) W32572 zc45h09.sl Soares senescent fibroblasts Nhuser Home saptiens cDNA clone 325313 3; (457. .272); 90% identity.

Complement (8962. .9102)

// note="predicted exon, program: grail2exons_human_1.3, frame: 1, quality: excellent, score: 87.000-(7621. .7578)

DDS similarity to W32571 zc45h09.rl Soares senescent fibroblasts NbHSF Home sapiens CDNA clone 325313 5, complement(9342. .9588)

// note="predicted exon, program: grail2exons_human_1.3, frame: 2, quality: excellent, score: 77.000*

// note="predicted exon, program: grail2exons_human_1.3, frame: 2, quality: excellent, score: 100.000*

// rept_family="gc_rich"

n complement(941. .10050)

// rept_family="gc_rich"
                                                                                                                                                                                                                                        DALFHEFLRHDPHFDDTPAAARHRARAHPHARKQWQRGRQHSDPGARAAPALAGTPAP
PAGAARPARAPLRRGDSVDGPPDGRTLGGAGDDPAIPVIEEEPGGGGCPGSGLCVLPS
GSVLDKLAAGLDERLFPPRLAEPVVATPALVAAAPTSPDHSPA"
QTSYRDLWSLRASLELHAAASDHSSSGNDRDSVRSGDSSGSGSGGAAPAFPPPSPPAP
                             RPKDGEARRLLQMDSGYASIEGRGAGDDTEPPAAPARPRSPRAWPRRPRRDYSIDEKT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      grail2exons_human_1.3, 74.000~DDS similarity to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="predicted exon, program: grail2exons_human_1.3, frame: 1, quality: excellent, score: 100.000" complement(10606. 10659)
/rpt_family="(TGG)n" complement(10767. 10853)
/note="predicted exon, program: grail2exons_human_1.3, frame: 2, quality: excellent, score: 88.000" 10813. 10864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    grail2exons_human_1.3,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         frame: 1, quality: excellent, score: 98.000 complement(10550. .10685)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement(8197. .8407)
/note="predicted exon, program:
frame: 0, quality: good, score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /rpt_family="(CAGA)n"
complement(10272..10336)
/note="predicted exon, program:
frame: 1, quality: excellent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /rpt_family="GC_rich"
complement(13948. .14249)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .7663)
                                                                                                                                    4099. .4301
/rpt_family="GC_rich"
4454. .4513
                                                                                                                                                                                                                       /rpt_family="(CGGG)n"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement(12493, .12)
/rpt_family="GC_rich"
12553, .12627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'rpt_family~"(CGG)n"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /rpt_family="MER58B"
complement(8197..84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   rpt_family="(CGG)n"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (TGG)n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /rpt_family="MIR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement (7506.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement (6557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .11656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .12627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rpt_family='
                                                                                                                                                                                            repeat_region
                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="DDS similarity to overlapping ESTS:
/note="DDS similarity to overlapping ESTS:
/note="DDS similarity to overlapping ESTS:
Homo sapiens cDNA clone 756470 3' similar to SW:VWUA_RNYKA
P34485 PROBABLE NUCLEARA ANTIGEN.; (433. .1); 91%
Homo sapiens cDNA clone INAGE:1073888. SCORE: 513
Identity. -(1359. .1050) AAS76906 nm73e05.s1 NCI_CGAP_CO9
Homo sapiens cDNA clone INAGE:1073888. SCORE: 513
Identity: 291/2905 (95%).-(1407. .1098) AA22429 2t28910.s1
Scares ovary tumor NbHOT Homo sapiens cDNA clone 714498
3' SCORE: 491 Identity: 290/299 (98%).-(1379. .1107)
AA642427 ns27400's1 NCI_CGAP_CGB1 Homo sapiens cDNA clone
IMAGE:1184845. SCORE: 482 Identity: 265/269
(98%).-(1406. .1144) AA557240 n175d11.s1 NCI_CGAP_BT Homo sapiens cDNA clone IMAGE:1056501. SCORE: 447 Identity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="DDS similarity to overlapping ESTS:
(1550. 1799) AA652409 ns57d10.s1 NCL_GGAP_Pr22 Homo
sapiens CDNA clone IMAGE:187731. Score: 478 Identity:
247/248 (994).-(1856. 1674) W32572 zc45h09.s1 Scares
senescent fibroblasts NbHSF Homo sapiens CDNA clone 325313
a" (192. 11); 99% identity.-(1675. 1793) AA568599
nm21cl2.s1 NCL_GGAP_C31 Homo sapiens CDNA clone
IMAGE:1060822. Score: 234 Identity: 118/119 (99%).*
           /note="COSmid library constructed at LLNL from flow-sorted chromosomes from hybrid 5HL2-B, which carries chromosome 19 as its only human chromosome."
                                                                                                                                                                                                                                                                                                                                                                                                       /product="STK11 [amino acids 371-433]"
/protein_id="AaF97257.1"
/db_xref="G1:9665054"
/translation="QVPEEEASHNGQRRGLFKAVCMNGTEAAQLSTKSRAEGRAPNPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ISPKATLAIFQPPGKALTGRSVGPSSALPGDPYNSAAGATDFAEISPSASSDSGEGTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RPFLASPPPALGRIEAAEAAGGASPDSPPERGAGSAGPEQQQPPLEPDAERDAGPEQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GEDPECQDAETERFLSTSSTGRRVSFNEAALFEQSRKTQDKGRQGGWQSTAAGASGMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGRALMARCCRRYTLTEGDFHHLKNARLTHLHLPPLKIVTIHECDSGEASSATTPHPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LDAGTRSTKAGGPGAAAGPGEAGPGSGAGTVLQFLTRLRRHASLDGASPYFKVKKWKL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EPSQRAASLDTRGSPKRHHFQRQRAASESTEQEEGDAPQEDFIQYIARAGDAVAFPHP
                                                                                                                                 //oce="serine/threonine kinase 11 (Peutz-Jeghers
Syndrome): LKB1; PJS; Serine/threonine protein kinase-11"
join(<1225. 1434,2364. .2865)
/gene="STK11"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation="MATAATTTTTTTATVALTTSWDNATGRPTAEPDPILDNYVLLVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="predicted exon, program: grail2exons_human_1.3, frame: 0, quality: good, score: 73.000" complement(join(3950. 4913,5872. 6046,8197. 8407,8962. 98062. 9102,3342. 9558,9779. 9916,10272. .10336,10550. .10689,10767. .10853), chote="Hypothetical 75.8 kDa human protein"
                                                                                                                                                                                                                                                                   /product="STK11 mRNA, partial CDS and 3'UTR"
                                                                                                                                                                                                                                                                                                                                                     /note-"Serine/threonine kinase 11"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /protein_id="AAC04305.1"
/db_xref="GI:2911259"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /rpt_family="SUBTEL_sat"
complement(3950, .4913)
/note="predicted exon, pi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /rpt_family="GC_rich"
complement(2792..2841)
/rpt_family="POLY_A"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'rpt_family="GC_rich"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /rpt_family="GC_rich"
3775. .3875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RKACSASSKIRRLSACKQQ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'product-"R29144_1"
                                                                                                                           /gene="STK11"
                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          codon_start=1
                                                                                                                                                                                                                                                                                          <1225. .1418
/gene="STK11'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                 gene
```

CDS

9

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                              VERSION
KEYWORDS
SOURCE
                                                                                                                                                                              AK023132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                                                LOCUS
                                         g
                                                                         ò
                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This clone (DKFZp434N1429) is available at the RZPD in Berlin. Please contact the RZPD: Ressourcenzentrum, Heubnerweg 6, 14059 Berlin-Charlottenburg, GERWANY; Email: clone@rzpd.de Further information about the clone and the sequencing project is available at http://www.mips.biochem.mpg.de/proj/cDNA/.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted (15-JAN-2000) MIPS, Am Klopferspitz 18a, D-82152
Martinsried, GERMANY
Clone from S. Wiemann, Molecular Genome Analysis, German Cancer
Research Center (EMF2); Email S. Wiemann@dkfz-heidelberg.de;
sequenced by BMF2 (Blomedical Research Center at the Charite,
Berlin/Germany) within the CDNA sequencing consortium of the German
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation="LWNWQKLHFYCPYQQQFASSHAVSVGCGVSVCVHMCICIYHAAG
VSFMLLSPGEVTSTIKGGSEMASGFLGVGQGPAGGFPSRCTEGSAEPTVCRGCVPRAL
                                                                                                                                            ö
                                                                                                                                                                                                                                                                               HSM801971 945 bp mRNA PRI 18-FEB-2000
HOMO Sapiens mRNA; cDNA DKFZp434N1429 (from clone DKFZp434N1429);
partial cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /clone="DKFZp434N1429"
/clone_lb="434 (synonym: htes3). Vector pSportl; host
DBH10B: sites NotI + SalI"
/dev_stage="adult"
                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 945) Koehrer, K., Beyer, A., Mewes, H.W., Gassenhuber, J. and Wiemann, S. Direct Submission
                                                                                                                                            Gaps
                                                                                                                                                                     ;
0
                                                                                                      85; Length 42805;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 945;
                                                                                                                                        15; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRPPPALASALQGGVP1LGAVCHAHLTQVCVPV'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 92;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product="hypothetical protein"
/protein_id="CAB70686.1"
/db_xref="GI:6807765"
/rpt_family="AluJb"
complement(15011..15068)
/rpt_family="Gc_rich"
complement(15433..15762)
/rpt_family="AluSx"
                                                                                                                                        0; Mismatches
                                                                                                    Score 29; DB
Pred. No. 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 28.8; 1
Pred. No. 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="DKFZp434N1429"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /tissue_type="testis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="DKFZp434N1429"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              282 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="unknown"
                                                                                                                                                                                                                                                                                                                                             AL137301
AL137301.1 GI:6807764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  36.0%;
                                                                                                  36.2%;
ilarity 71.7%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               216 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Genome Project
                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens
                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
Matches 48; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         polyA_signal
polyA_site
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            223
                   repeat_region
                                                    repeat_region
                                                                                                                                      38;
                                                                                                    Query Match
                                                                                                                      Best Local
Matches 3
                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                         HSM801971
                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                               VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMMENT
```

```
NEDO human cDNA sequencing project supported by Ministry of International Trade and Industry of Japan; cDNA full insert, sequencing; Research Association for Blotechnology; cDNA library construction, 5'- & 3'-end one pass sequencing and clone selection: Helix Research Institute (supported by Japan Key Technology Center etc.) and Department of Virology, Institute of Medical Science,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submitted (23-AUG-2000) to the DDBJ/EMBL/GenBank databases. Takao insogai, Helix Research Institute, Genomics Laboratory; 1532-3 Yana, Kisarazu, Chiba 292-0812, 1838-52-3951, Pax:81-438-52-3952)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Isogal.T., Ota.T., Hayashi.K., Sugiyama.T., Otsuki,T., Suzuki,Y., Nishikawa.T., Nagai.K., Sugano,S., Shiratori,A., Sudo,H., Wagatsuma.M., Hosofil.T., Kaku,Y., Kodaira.H., Kondo,H., Sugawara.M., Takahashi.M., Chiba.Y., Ishida.S., Murakawa,K., Ono,Y., Takiguchi,S., Watanabe,S., Kimura,K., Murakama,K., Ishil,S., Kawai.Y., Saito,K., Yamamoto,J., Wakamatsu.A., Nakamura,Y., Nagahari.K., Masuho,Y., Ninomiya,K. and Iwayanagi.T. NEDO human cDNA sequencing project Upublished (2000)
I Chassa I to 4214)
Isogal.T. and otsuki,T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo Sapiens
Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;
Mammalia; Butheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 neuronal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                             29-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 attcacatccaccagccatgagggtgcttgtactagctcttgctgtggctctcgcagtgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    precursor cells after 2-weeks retinoic acid (RA)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="cloning vector: pME18SFL3~mRNA from NT2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 4214;
                                                                                                                                                                                                                                                                  AKO23132 4214 bp mRNA PRI 2:
Homo sapiens cDNA FLJ13070 fis, clone NT2RP3001777.
AKO23132
                                                                                                                                                                                                                                                                                                                                                               AK023132.1 GI:10434913 oligo capping, fils (full insert sequence). Homo sapiens terratocarcinoma cell_line:NT2 cDNA clone_lib:NT2RP3 clone:NT2RP3001777.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 89;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /cell_type="teratocarcinoma"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ch 36.0%; Score 28.8; 1 Similarity 60.0%; Pred. No. 18; 48; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /clone="NT2RP3001777"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="taxon:9606"
/cell_line="NT2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1278 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /clone_lib="NT2RP3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4069 GGAATCCGACCGTGTTGGGG 4088
                                                                                                                                                    762 GGAATCCGACCGTGTGGGG 781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    University of Tokyo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               induction."
1120 c
                                                                                                  61 gggaccagtccaacttgggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 gggaccagtccaacttgggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1. 4214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
```

ó;

ö

Gaps

; 0

Indels

32;

0; Mismatches

Conservative

DEFINITION

VERSION KEYWORDS

RESULT AK024508

LOCUS

ORGANISM

SOURCE

AUTHORS TITLE

REFERENCE

TITLE JOURNAL

AUTHORS

JOURNAL REFERENCE

```
Direct Submission

Obtect Submission

Direct Submission

CB10 1SA, UK. F-mail enquiries: humquery@sanger.ac.uk Clone
requests: clonerequest@sanger.ac.uk

On Sep 19, 2000 this sequence version replaced gi:10129695.

During sequence assembly data is compared from overlapping clones.
Where differences are found these are annotated as variations
where differences are found these are annotated as variations
requence assembly data is compared from overlapping clone name. Note that the
variation annotation may not be found in the sequence submission
corresponding to the overlapping clone, as we submit sequences with
only a small overlap as described above.
The following abbreviations are used to associate primary accession
numbers given in the feature table with their source databases:
Em: EMBL: Sw: SWISSPROT: Tr:, TREMBL: WP:, WORMPEP: Information
on the WORMPEP database can be found at
http://www.sanger.ac.uk/Projects/C_elegans/wormpep This sequence
the WORMPEP database can be found at
was generated from part of bacterial clone contigs of human
chromosome 20, constructed by the Sanger Centre Chromosome 20
Mapping Group. Further information can be found at
http://www.sanger.ac.uk/RGP/Chr20
IMPORTANT: This sequence is not the sequence overlapping
sections only once, except for a 100 base overlap.
The true right end of clone RP4-591C20 is at 139505 in this
sequence. The true left end of clone RP1-381315 is at 42466 in
this sequence. The true left end of clone RP1-381315 is at 42466 in
this sequence. The true right end of clone RP1-381315 is at 42466 in
this sequence. The true left end of clone RP1-381315 is at 42466 in
this sequence. The true left end of clone RP1-381315 is at 42466 in
this sequence. The true left end of clone RP1-381315 is at 42466 in
this sequence. The true left end of clone RP1-381316 is at 42466 in
this sequence. The true left end of clone RP1-381316 is at 42466 in
this sequence. The true right end of clone RP1-381316 is at 42466 in
this sequence and the alternate chemistry or covered by high quali
protein similar to mouse and bovine cysteine string protein with two isoforms, a gene for a novel phosphoribulokinase with three isoforms, the KIAA1196 gene, the 5' part of the TOM gene for a putative mitochondrial outer membrane protein import receptor similar to yeast pre-mRNA splicing factors Prpl/Zerl and Prp6 and AL118506
                                                                                                                                                                                                                                                                          HTG; CpG island; cysteine string; DnaJ; import receptor; KIAA1196;
NG26; phosphoribulokinase; Prpl; Prp6; splicing factor; TOM;
TPD52L2; tumor protein; Zerl.
                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 139505)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2011. .2060
/note="AluJ/monomer repeat: matches 1. .53 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2061. .2194
/note="AluJo/FLAM repeat: matches 1. .130 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1064. .1212
/note="MRR53 repeat: matches 55. .188 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            748. 1063
/note="AluSq repeat: matches 1. .313 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="MER53 repeat: matches 1. .55 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone_lib="RPCI-4"
596. .747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /clone="RP4-591C20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2445. .6791
/note="CpG island"
                                                                                                                                                                                                                                               AL118506.27 GI:10190557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1. 139505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VECTOR: pCYPAC2
                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Almeida, J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                            human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
JOURNAL
                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                         VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                            SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Submitted (24-NOG-2000) to the DDBJ/EMBL/GenBank databases. Osamu Ohara, Kazusa DNA Research Institute, Department of Human Gene Research; 1532-3, Yana, Kisarazu, Chiba 292-0812, Japan (E-mail:cdnainfo@kazusa.or.jp, URL:http://www.kazusa.or.jp/NEDO, TE1:81-438-52-3913, Fax:81-438-52-3914)
NEDO human cDNA sequencing project supported by Ministry of International Trade and Industry of Japan; cDNA full insert sequencing: Research Association for Biotechnology; cDNA library construction, 5'-6'3'-and one pass sequencing and clone selection: Kazusa DNA Research Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human DNA sequence from clone RP4-591C20 on chromosome 20 Contains ESTs, STSs, GSSs and CpG islands. Contains a novel gene for a protein similar to mouse NG26, the TPD52L2 gene for three isoforms of tumor protein D52-like protein 2, a gene for a novel DnaJ domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                         1 (bases 1 to 4813)
Ohara,O., Nagase,T., Kikuno,R. and Okumura,K.
The nucleotide sequence of a long cDNA clone isolated from human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 attcacatccaccagccatgagggtgcttgtactagctcttgctggggctctcgcagtgg 60
                                                                                     29-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                05-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 4813;
                                                                                                                                                                                                     fis (full insert sequence). Homo sapiens adult spleen cDNA to mRNA, clone:as00118.
                                                                        AKO24508 4813 bp mRNA PRI 29
Homo sapiens mRNA for FLJ00118 protein, partial cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note-"Start codon is not identified."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Published Only in DataBase (2000) In press 2 (bases 1 to 4813)
2 Adra-O., Magase, T., Kikuno, R. and Okumura, K. Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /tissue_type="spleen"
/note="vector:pBluescriptII SK plus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 89;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 28.8; DE
Pred. No. 18;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product-"FLJ00118 protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATETTOLTADSHPSYHTDGFN"
1 1308 c 1445 g 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="taxon:9606"
/clone="as00118"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /dev_stage="adult"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="FLJ00118"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="FLJ00118"
                                                                                                                                                                       AK024508.1 GI:10440535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Db · 4663 GGAATCCGACCGTGTTGGGG 4682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             36.0%;
60.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61 gggaccagtccaacttgggg 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HSJ591C20 139505 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .4813
                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity
Matches 48; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  spleen
```

source

FEATURES

COMMENT

gene

CDS

Query Match

ò g ð

BASE COUNT

ORIGIN

HSJ591C20 LOCUS DEFINITION

RESULT

us-09-426-776-11.rge

```
AC068717 153713 bp DNA HTG 07-JUL-2000 Homo sapiens chromosome 4 clone RP11-13K9, WORKING DRAFT SEQUENCE, 13 unordered pieces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Db 76746 AATCAAATGCACACGCATGGAAGCTGCTTGTCCATGCACTGGTTTTGTCACTGGCGTCCT 76805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="Alusx repeat: matches.31..311 of consensus"
15312. 15622
1602. 1602
1806. 11010
1904. 11010
1904. 1905. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 1906. 190
                                                                                                                                                                                  .297 of consensus"
                                                                                                                                                                                                                                           note="Alusx repeat: matches 1. .302 of consensus" (2302. .12577
                                                                                                                                                                                                                                                                                                                                                                       .298 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               note="Alusx repeat: matches 1. .306 of consensus" (3639. .13960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'note="MIR repeat: matches 119. .225 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 attcacatccaccagccatgagggtgcttgtactagctcttgctgtgggctctcgcagtgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="Alur repeat: matches 1. .311 of consensus" 44156. .14464
//note="Alusp repeat: matches 1. .309 of consensus" 1489. .15297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               21557. .21857
/note="AluY repeat: matches 1. .300 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             note-"Alux repeat: matches 1. .137 of consensus"
8776. .18979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                note="AluY repeat: matches 1. .309 of consensus"
8273. .18406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 139505;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .Indels
                                                                                                                        .306 of
                                                                                                                                                                                                                                                                                                           .295 of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       note="13 copies 2 mer tt 92% conserved"
3231. .13511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16102. .16127
/note="13 copies 2 mer ta 96% conserved"
                                                               oţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                conserved"
                                                            . 298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 92;
                                                                                                                                                                                                                                                                                                           21.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21557. .21769
/gene="TPD52L2"
/note="match: GSS: Em:AQ631401"
/gene="TPD52L2"
                                                                                                                  /note- Alux repeat: matches 106.
11667. 11963
/note- Ralusg repeat: matches 1.
11989: .12290
                                                                                                                                                                                                                                                                                                                                                                    'note="AluSq repeat: matches 1.
                                                            note-"AluJb repeat: matches 1.
                                                                                                                                                                                                                                                                                                                                                                                    /note="match: GSS: Em:AQ192102"
//note="match: GSS: Em:AQ192102"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="match: GSS: Em:AQ722319"
13322, .13625
note="match: GSS: Em:AQ583076"
                                                                                                                                                                                                                                                                                                        /note="AluSx repeat: matches 12587. .12881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            mer 61%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 36.0%; Score 28.8; DE Best Local Similarity 60.0%; Pred. No. 17; Matches 48; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18776. .18979
/note="12 copies 17
19859. .19957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AC068717.2 GI:8468941
HTG; HTGS_PHASE1; HTGS_DRAFT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13231. .13511
/gene="TPD52L2"
                                                                                            11666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7964. .18272
                                                                                               1469.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AC068717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              numan.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                   repeat_region
                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                           repeat_region
                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AC068717/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Join(6314. .6332,10244. .10389,14616. .14764,16764. .16823,
23667. .23768,30138. .30186,30798. .30893)
/gene="TPD52L2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .16823,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation="MDSAGQDINLNSPNKGLLSDSMTDVPVDTGVAARTPAVEGLTEA
EREELRAELTKVEEEIVTHQVLAAREHGGELKRLGLSTTGELKQMLSRSWHDVQV
SSAYVKTSEKLGEMNEKVTGSDLYKKTGETLSQAGGKTSAALSTVGSAISRKLGDMRN
SATFKSFEDRVGTIKSKVVGDRENGSDNLPSSAGSGRKPLSDPAPF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             translation="MCVICFVKALVRVFKIYLTASYTYPFRGWPVAFRWDDVRAVGRS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SSHRALTCAAAAAGVWLLRDETLGGDALGRPPRGARSQAQCLLQQLRELPGQLASYAL
AHSLGRWLVYPGSVSLMTRALLPLLQQGQERLVERYHGRRAKLVACDGNEIDTWFWDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PLALKVMPHSWKGLVVRTVREHFNLNVAEQLCCYPGPVLLLRRTQDDVVSTSGRLRPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3 PGDV EGNRGNELLLRLLEHRY PVVMAREGRAVVTRWLRAGSLAQEAAFYARYRVDED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RQHPGSHVHGPRLVICCEGNAGFYEMGCLSAPLEAGYSVLGWNHPGFGSSTGVPFPQH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DANAMDVVVEYALHRLHFPPAHLVVYGWSVGGFTATWATMTYPELGALVLDATFDDLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WCLALLRSYRARCEEELEGEEALGPHGPAFPWLVGQGLSSRRRRLALFLARKHLKNV
                                                                                                                                                                                                        match: ESTs: Em:AA664327 Em:A1207810 Em:AA779058
match: proteins: Tr:O95870 Tr:O92102 Tr:O69340 Tr:Q9VZF1
Sw:P41879 Tr:Q69130 Tr:Q90783 Sw:P04258"
                                                                                                                                                  /note="match: cDNAs: Em:AK001207 Em:AL157426 Em:U95607
                                                                                                                                                                                                                                                                                                                                    /evidence=not_experimental
/product="dJ591C20.1 (novel protein similar to mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Thote-"Aluy repeat: matches 1. .309 of consensus"
7707. .7893
7706. .7893
7706. .8201
7894. .8201
7706-"Alusp repeat: matches 1. .308 of consensus"
7706-"Alusp repeat: matches 1. .308 of consensus"
7706-"Alusp repeat: matches 1. .308 of consensus"
7706-"Alusp repeat: matches 120. .134 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8232. 8530

//note="AluSx repeat: matches 1. .300 of consensus"

8769. 8885

//note="AluSq/x repeat: matches 1. .117 of consensus"

8950. .3159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  430. 5743

note="AluSq repeat: matches 6. 312 of consensus"

notin (6238. 6332,10244. 10389,14616. 14764,16764.

13667. 13768,30138. 30186,30798. 32493)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /evidence=not_experimental
/product="dJ591C20.2.1 (tumor protein D52-like 2)"
/protein_id="CAC15492.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="Alusx repeat: matches 5. .292 of consensus" complement(9791. .10250)
/note="match: GSS: Em:AQ888148" complement(9810. .10258)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1042. .7350
/note="Alusc repeat: matches 1. .309 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .212 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       evidence=not_experimental
product="dJ591C20.2.1 (tumor protein D52-like 2)'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          rocte-"match: cDNAs: Em:AF004430
hatch: ESTs: Em:AW230830 Em:AA833100 Em:AA608309"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           103. 5232
note="MIR repeat: matches 9. .146 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AluSx repeat: matches 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      match: proteins: Tr:043399
      evidence-not_experimental
                                                                                                                                                                                  Em:X57435
match: ESTs: Em:AA664327
                                                                                                                                                                                                                                                                                                                                                                                                                                /protein_id="CAC15491.1"
/db_xref="G1:11125672"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'db_xref="GI:11125673"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SATHFSPLEPEEFQLPWRL"
                               2489. .3898
/gene="dJ591C20.1"
                                                                                            2489. .3898
/gene="dJ591C20.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'note="isoform 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   238. .32493
gene="TPD52L2"
                                                                                                                                                                                                                                                                                                           codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'note="
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5103.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                            CDS
```

ö

```
Db 98480 CCTGAGGGAGCATGCACCAGATCTTTCTCTAGTACTGCCAGATGAGGACCCAGCCAACT 98422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4249 CCTGCAGCCATGAAGTGCCTCGCTTGCCCTGGGCCTGGCCTCTGGCGTCCAG 4308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18-FEB-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17 catgagggtgcttgtactagctcttgctgtgggctctcgcagtgggggaccagtccaact 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 153713;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Temperley, S.M., Foster, D.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 10807;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 (bases I to 10807)
Garner, I., Cottingham, I.R., Temperley, S.M., Foster, D. Sprecher, C.A. and "Prunkard, D.E.
Protein C. production in non-human transgenic mammals Patent: US 5905185-A 5 18-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1203 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 74;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  126073. 153713
/note="assembly_name:Contig17"
. 26412 c 26181 g 50874 t
                                                                                                                                                                                                                                                                                                                                                                                 60944. .75250
/note="assembly_name:Contig14"
                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="assembly_name:Contig15"
                                                                                                                                                                                                         29854. .37501
/note="assembly_name:Contig10"
                                                                                                                                                                                                                                                            /note="assembly_name:Contig11"
44411. .52859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="assembly_name:Contig16"
                                                                                                                                                                                                                                                                                              'note="assembly_name:Contig12"
                                                                                                                                                                         20703. .29753
/note="assembly_name:Contig9"
                                                                                                                                                                                                                                                                                                              52960. .60843
/note="assembly_name:Contig13
                                                                    1696. 7734
/note="assembly_name:Contig6"
7835. 14154
                                                                                                                     /note="assembly_name:Contig7"
                                                                                                                                              /note="assembly_name:Contig8"
20703. .29753
                     'note="assembly_name:Contig5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         35.8%; Score 28.6; DB ilarity 67.8%; Pred. No. 19; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2542 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  35.5%; Score 28.4; I 62.9%; Pred. No. 24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AR070469 10807 bp DNA
Sequence 5 from patent US 5905185.
AR070469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="unknown"
3066 c 2985 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                               vector_side:left"
                                                  vector_side:left"
                                                                                                                                                                                                                                             37602. .44310
                                                                                                                                                                                                                                                                                                                                                  clone_end:SP6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AR070469.1 GI:7221357
                                     clone_end:T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      44; Conservative
 .1595
                                                                                                                                                                                                                                                                                                                                                                                   60944.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2214 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          49043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Unknown
   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                        misc_feature
                                                                                                                                                                           misc_feature
                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                        misc_feature
                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AR070469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                           Louis,
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;
Mammalla; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                   Direct Submission
Submitted (O.MAY-2000) Genome Sequencing Center, Washington
University School of Medicine, 4444 Forest Park Parkway, St.
MO 63108, USA
On Jun 12, 2000 this sequence version replaced gi:7715643.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence as soon as it is available and the accession number will be preserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           consists of 13 contigs. The true order of the pieces is not known and their order in this sequence record is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NOTE: This is a 'working draft' sequence. It currently
                                                                                                                                                                                                                                                                                                                                                                                            Chemistry: Dye-primer ET; 100% of reads
Chemistry: Dye-terminator Big Dye; 0% of reads
Assembly program: Phrap; version 0.990319
Consensus quality: 148042 bases at least Q40
Consensus quality: 150266 bases at least Q20
Insert size: 157000; agarose-fp
Insert size: 157513; sum-of-contigs
Quality coverage: 4.99 in Q20 bases; sum-of-contigs
Quality coverage: 5.18 in Q20 bases; sum-of-contigs
                                                                                                                                                                                                                                                          Center: Washington University Genome Sequencing Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gap of unknown length contig of 27641 bp in length.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of 14307 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 of 18443 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 contig of 6039 bp in length
gap of unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        of 7648 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        of 6709 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of 7884 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               of 6320 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6348 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9051 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       of 8449 bp in length
                                                                                                                                                                                                                                                                                              Web site:http://genome.wustl.edu/gsc/index.shtml
                                                                                                                                                                                                                                                                                                              length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          unknown
                                                           The sequence of Homo sapiens clone Unpublished

    Summary Statistics

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Homo sapiens'
                                                                                                                                                                                                                                             ----- Genome Center
                Mammalia; Eutheria; Primates;
1 (bases 1 to 153713)
Waterston, R.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /db_xref="taxon:9606
                                                                                                                                                                                                                                                                                                                                                               Sequencing vector: M13; 100%
Sequencing vector: plasmid; (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                contig
gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ō
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            contiq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /clone="RP11-13K9"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gap of
                                                                                                 2 (bases 1 to 153713)
Waterston, R.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  126072:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  153713:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                93894
125973
126073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                TITLE
JOURNAL
REFERENCE
AUTHORS
                                                                                                                                     TITLE
JOURNAL
                                  REFERENCE
                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                         COMMENT
```

ö

ö

Gaps

```
contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        contig
gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      contiq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  26968:
27696:
                                                                                                                                                                                                                                                                                                                                                           2353;
                                                                                                                                                                                                                                                                                                                                                                          2433:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8498:
                                                                                                                                                                                                                                                                                                                                             1726
1806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5001
5576
5656
6244
6324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6992
7532
7612
8419
8499
8827
8907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9968
10048
11129
11209
12368
12448
13265
13345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4426
15340
15420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18801
20315
20395
22175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23618
24302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25496
26889
26969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2225
                                             JOURNAL
                        TITLE
                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Drosophila melanogaster chromosome X clone BACR47D09 (D895) RPCI-98 47.D.9 map 14c-140 strain y; cn bw sp, *** SEQUENCING IN PROGRESS ***, 107 unordered pieces.
                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Learly Library L. Clampe, M., Arcaina, T.T., Baxter, E., Blazej, R.G., Butenhoff, C., Champe, M., Chavez, C., Chew, M., Ciesiolka, L., Doyle, C.M., Farfan, D.E., Galle, R., George, R.A., Harris, N.L., Hinkle, A., Hoskins, R.A., Houston, K.A., Hummasti, S.R., Karra, K., Kearney, L., Lee, B., Lewis, S., Li, P., Ling, H., Moshrefi, A.R., Moshrefi, M., Nixon, K., Pacleb, J.M., Park, S., Pfelffer, B., Woolley, P., Yang, S., Yee, M., Yu, C. and Rubin, G.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Celniker.S.E., Agbayani,A., Arcaina,T.T., Baxter,E., Blazej,R.G., Butenhoff,C., Champe,M., Chavez,C., Chew,M., Ciesiolka,L., Doyle,C.M., Farfan,D.E., Galle,R., George,R.A., Harris,N.L., Hoskins,R.A., Houston,R.A., Hummasti,S.R., Karra,K., Kearney,L., Kim,E., Lee,B., Lewis,S., Li,P., Lomotan,M.A., Mazda,P., Moshrefi,A.R., Moshrefi,M., Nixon,K., Pacleb,J.M., Park,S., Pfeiffer,B., Poon,L., Sequeira,A., Sethi,H., Snir,E., Svirskas,R.R., Wan,K.H., Weinburg,T., Zhang,R., Zieran,L.L. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9 ccaccagccatgagggtgcttgtactagctcttgctgtggctctcgcagtggggaccag 68
                                                                                                                   07-0CT-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta; Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                 Length 10807;
                                                                                                                                                                                                                                                        and Foster, D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                 1 (bases 1 to 10807)
Garner, I., Dalrymple, M.L., Prunkard, D.E. and Fc
Production of fibrinogen in transgenic animals
Patent: US 5639940-A 7 17-JUN-1997;
                                                                                                                                                                                                                                                                                                                                                                                                          35.5%; Score 28.4; DB 10;
62.9%; Pred. No. 24;
ive 0; Mismatches 26;
                                                                                                  147708 10807 bp DNA
Sequence 7 from patent US 5639940.
147708
                                                                                                                                                                                                                                                                                                                             /organism="unknown"
3066 c 2985 g
                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       unordered pieces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AC010920.10 GI:6978364
HTG; HTGS_PHASE1.
fruit fly.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (bases 1 to 172815)
                                                                                                                                                         GI:2471673
                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 35.55
Best Local Similarity 62.99
Matches 44; Conservative
                                                                                                                                                                                                                                                                                                                   1. .10807
69 tccaacttgg 78
||| | | | |
4309 GCCATCATCG 4318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4309 GCCATCATCG 4318
                                                                                                                                                                                                                      Unclassified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            69 tccaacttgg 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished
                                                                                                                                                                                                                                                                                                                                             2214 a
                                                                                                                                                       147708.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AC010920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AC010920
                                                                                                                                                                                     Unknown.
                                                                                                                                                                                                      Unknown
                                                                                                                                                                                    SOURCE
                                                                                                                                                                                                                                                                                                                source
                                                                              1
                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                           BASE COUNT
                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 1
                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                              FEATURES
                                                                           RESULT.
147708
                                                                                                                                                       VERSION
                                                                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                          COCUS
                                g
   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
```

```
Direct Submission

Submitted (27-SEP-1999) Drosophila Genome Center, Lawrence Berkeley Laboratory, MS 64-121, Berkeley, CA 94720, USA

On Feb 15, 2000 this sequence version replaced gi:6466918.

For further information about this sequence, including its location and relationship to other sequences, please visit our sequence archive Web site (http://www.fruitfly.org/sequence/) or send email to bdgp@fruitfly.berkeley-du. All contigs in this submission meet the following cutoffs: length >= 200 bases.

* NOTE: This is a 'working draft' sequence. It currently consists of 107 contigs. The true order of the pieces is not known and their order in this sequence record is arbitrary. Gaps between the contigs are represented as runs of N. but the exact sizes of the gaps are unknown.

* This record will be updated with the finished sequence as soon as it is available and the accession number will
                                                                                                                                                                                                                                                                                      unknown length
of 1063 bp in length
unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                  unknown length
of 1002 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1061 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1081 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1001 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     length
                                                                                                                                                                                                                                                                          of 582 bp in length
                                                                                                                                                                                                                                                                                                                                        of 548 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of 588 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         of 807 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      unknown length
of 328 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        length
                                                                                                                                                                                                                                                                                                                                                                                                       of 627 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            914 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           591 bp in length
                                                                                                                                                                                                                                                                                                                                                          unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     length
                                                                                                                                                                                                                                                                                                                                                                                        unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                      length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     unknown length
of 1159 bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 of 817 bp in ]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         of 1531 bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1019 bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  unknown length
of 1780 bp in
                                                                                                                                                                                                                                                                                                                                                                      698 bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             540 bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   575 bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  588 bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        unknown
                                                                                                                                                                                                                                                                          contig
                                                                                                                                                                                                                                                                                                                                                     gap of
contig
gap of
                                                                                                                                                                                                                                                                                           gap of contig
                                                                                                                                                                                                                                                                                                                        gap of
contig
                                                                                                                                                                                                                                                                                                                                                                                                   contig
gap of
contig
                                                                                                                                                                                                                                                                                                                                                                                                                                               gap of
contig
gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             contig
gap of
contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gap of contig gap of contig gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     contig
gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    contig
gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              contig
gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           contig
gap of
contig
gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      contig
gap of
contig
gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  contig
gap of
contig
gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   contig
gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gap of
```

1283 bp in length

unknown length unknown length

684 bp in length

ength

unknown ō

ength length

of 728 bp

```
12219 bp in length
inown length
17228 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           יי של
i length
in length
                                                                                                                                                                                                                                                                                                                                                  8973 bp in length
                                                                                                                                                                                                                                                                                                                                                                 bp in length
                                                                                                                                                                                                                                                             length
                                   length
                                                                                                                                                                                                                                                                               length
                                                                                                                                                                                                                                                                                                bp in length
                                                                                                                                                                                                                                                                                                                 bp in length
                                                                                                                                                                                                                                                                                                                                in length
                                                   length
                                                                   in length
                                                                                     length
                                                                                                      in length
                                                                                                                       length
                                                                                                                                      length
                                                                                                                                                        bp in length
                                                                                                                                                                         length
                                                                                                                                                                                          length
                                                                                                                                                                                                           length
                                                                                                                                                                                                                            in length
                                                                                                                                                                                                                                              bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                     512 bp in length
nown length
                                                                                                                                                                                                                                                                                                                                                                                                                                     451 bp in length known length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               unknown length
of 648 bp in length
unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                      399 bp in length
nown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          757 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     unknown length
of 474 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                462 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               of 861 bp in length
unknown length
                                                                                                                                                                                                                                                                                                                                                         length
                                                                                                                                                                                                                                                                                                                                        length
                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                           unknown length
                                                                                                                                                                                                                                                                                                                          ength
                          ength
                                           ength
                                                                                              ength
                                                                                                               Length
                                                                                                                               length
                                                                                                                                                                  length
                                                                                                                                                                                                   length
                                                                                                                                                                                                                    length
                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                     length
                                                                                                                                                                                                                                                                                       length
                                                                                                                                                                                                                                                                                                        ength
                                                                                                                                                                                                                                                                                                                                                                                                             unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        length
                                                                                                                                                length
                                                                                                                                                                                   length
                                                     ŗņ
                                                                                                                                                                                            ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         557 bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         472 bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             561 bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                             unknown
                                                                                                                                                                                                                                                                                                                                                                                                                               unknown
contig
gap of
contig
gap of
contig
                                                 contig
gap of
contig
                                                                                                                                                                                                                                                                                                                                                                                  contig
gap of
                                                                                     contig
gap of
                                                                                                     contig
gap of
contig
gap of
                                                                                                                                     contig
gap of
                                                                                                                                                                                                          contig
gap of
                                                                                                                                                                                                                                                    gap of
contig
                                                                                                                                                                                                                                                                     gap of contig gap of contig gap of contig gap of contig gap of contig gap of contig gap of
                                                                                                                                                                                                                                                                                                                                                 contig
gap of
contig
                                                                                                                                                                                                                                                                                                                                                                                                   contig
                                                                                                                                                                                                                                                                                                                                                                                                                     contig
                                                                                                                                                        contig
                                                                                                                                                                        contig
gap of
                                                                                                                                                                                                                                   gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            contig
                                                                                                                                                                                                                                                                                                                                                                                                                                              Jap of
                                                                                                                                                                                          contig
                                                                                                                                                                                                                           contig
                                                                                                                                                                                                                                                                                                                                                                           lap of
                                                                            gap of
                                                                                                                                                                                                   Jap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                145865:
145945:
```

```
Eukaryotta; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta; Pterygota; Metazoa; Bidopterygota; Diptera; Brachycera; Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.

1 (bases I to 840)

DiAntonio,A., Burgess,R.W., Chin,A.C., Deitcher,D.L., Scheller,R.H. and Schwarz,T.L.
Identification and characterization of Drosophila genes for Synaptic vesicle proteins

J. Neurosci. 13 (11), 4924-4935 (1993)
                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               inote "synaptic vesicle protein; This sequence comes from
                                                                                                                                                                                                                                                                                                                                                                                                                                      GenBank staff at the National Library of Medicine created this entry (NCBI glbbsq 139319) from the original journal article. This sequence comes from Fig. 1. Map location: band 62a. Map location:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S66686 840 bp mRNA 1NV 23-DEC-1993
n-syb=vamp homolog [Drosophila, head, mRNA, 840 nt].
S66686
                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                          Length 172815;
                                                                                                                                                                                                                                                                                                                                                                                                           ö
g of 254 bp in length funknown length of 291 bp in length unknown length of 515 bp in length funknown length of 1003 bp in length of 1003 bp in length funknown length
                                                                                                                                                                                                                                                                                                                                                                          Score 28.4; DB 62; Length
Pred. No. 23;
0; Mismatches 21; Indels
                                                                                                                            g of 847 by in length f unknown length g of 409 bp in length f unknown length g of 526 bp in length f unknown length
                                                                                                                                                                                                                            y of 655 bp in length
f unknown length
g of 533 bp in length
f unknown length
                                                                                                                                                                                                                                                                                         of 570 bp in length
unknown length
                                                                                                                                                                                                                                                                                                                            length
                                                                                                                                                                                                                                                                                                                            792 bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1. .840
./organism="brosophila sp."
/db_xref="taxon:7242"
/gene="n-syb"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
/protein_id="AAB28707.1"
/db_xref="GI:436307"
                                                                                                                                                                                                                                                                                                                            of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="vamp homolog"
154. .699
/gene="n-syb"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                 contig
                                                                                                                                                                                                                                                                                                contig
                                                                                  gap of
                                                                                                                                                                                  gap of
                                                                                                                                                                                                 contig
                                                                                                                                                                                                                                                                               ō
                                                                                                                  gap of
                                                                                                                                                  ō
                                                                                                                                                                                                                                               ō
                                                                                                                                                                                                                gap of
                                                                                                                                                                                                                                                                                                                                             153220:
                                                                                                                                                                                                                                                                                                                                                                        Query Match 35.5%;
Best Local Similarity 66.1%;
Matches 41; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Drosophila sp. head.
Drosophila sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S66686.1 GI:436306
                                                                                              147246
148249
                                                  146571
146651
147166
                                                                                                                                48329
                                                                                                                                                                                49665
                                                                                                                                                4917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0b 157030 CC 157031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        70 cc 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 13
S6668/c
LOCUS
DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
MEDLINE
REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        οy
```

à

```
/translation="Madaapagdappnagapageggdgeivggphnpqqiaaqkrloo
TQAQVDEVVDIMRTNVEKVLERDTKLSELDDRADALOOGASGPEQQAGKLKRKFWLQN
LKMMIINGVIGLVVVGIIANKLGLIGGEQPPQYQYPPQYMQPPPPPQQPAGGQSSLV
DGAGAGDGAGGSAGAGDHGGV"
                                                                                                                                                                                                                                                                                                                                                                                   *** SEQUENCING IN PROGRESS ***, in ordered
                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         D64000.1 GI:1001484
RadC; 16S IRNA; 23S IRNA; 3-hydroxyisobutyrate dehydrogenase; 30S
Inbosomal protein L20; 50S ribosomal
Protein L31; 55 IRNA; ABC transporter; ABCI-like; ATP-dependent Clp
Protein L35; 55 IRNA; ABC transporter; ABCI-like; ATP-dependent Clp
Protease regulatory subunit; DNA recombinase; GMP synthetase; Mg2+
transport ATPase; RadC protein; UDP-3-o-[3-hydroxymyristoyl]
glucosamine n-acyltransferase; UDP-N-acetylqlucosamine
1-carboxyvinyltransferase; amidophosphoribosyltransferase;
aspartate aminotransferase; carboxyl-terminal processing protease;
cell division protein FtsH; cobinamide kinase; cytochrome b6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SYCSLRB 146271 bp DNA BCT 13-FEB-1999
Synechocystis sp. PCC6803 complete genome, 19/27, 2392729-2538999.
D64000 AB001339
                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This sequence was identified as CDM:10213948 by the submitter. For more information on this record e-mail to fly@celera.com. * NOTE: This is a 'working draft' sequence. * This sequence will be replaced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta; Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Direct Submission
Submitted (09-DEC-1999) Celera Genomics, 45 West Gude Drive,
Rockville, MD, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    by the finished sequence as soon as it is available and
the accession number will be preserved.
Location/Qualifiers
                                                                                                                                                                                                                                  4 cacatccaccagccatgaggtgcttgtactagctcttgctgtggctctcgcagtgg
                                                                                                                                                                                                                                                         ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 50701;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                               DB 6; Length 840;
                                                                                                                                                         Score 28.2; DB 6; Length 8
Pred. No. 29;
0; Mismatches 18; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Drosophila melanogaster"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 65;
                                                                                119 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /db_xref="taxon:7227"
12081 c 12135 g 12741 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 28.2; D
Pred. No. 27;
0; Mismatches
                                                                                257 g
                                                                                                                                                                                                                                                                                                                                                                                 DNA
                                                                                                                                                                                                                                                                                                                                                                                             Drosophila melanogaster,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Adams, M. and Venter, J.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                     AC018231.1 GI:6552960
HTG: HTGS_PHASE2.
                                                                                                                                                       Match 35.2%;
Local Similarity 68.4%;
les 39; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     35.2%;
68.4%;
                                                                                                                                                                                                                                                                                                                                                                           50701 bp
                                                                              230 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity 68.4:
Matches 39; Conservative
                                                                                ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               fruit fly
                                                                                                                                                                                                                                                                                                                                                                             AC018231
                                                                                                                                                                                                                                                                                                                                                                                                                                       AC018231
                                                                              234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13744
                                                                                                                                                         Query Match
                                                                        BASE COUNT
ORIGIN
                                                                                                                                                                            Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                         LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCUS
                                                                                                                                                                                                                                                                                                                                                    AC018231/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                   RESULT: 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SYCSLRB/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
```

ð g

```
cytochrome b6-f complex subunit 4; cytosine-specific methyltransferase; ferredoxin; fructose-1,6-bisphosphate aldolase; fumarise; glucose inhibited division protein A; glucose transport protein; glucose-1-phosphate thymidylyltransferase; glucose-1-phosphate thymidylyltransferase; glucose-1-phosphate thymidylyltransferase; glucose-1-semialdehyde 2,1- aminomutase; glycyl-tRNA synthetase beta chain; high-affinity branched-chain amino acid transport APP-binding protein; histidyl-tRNA synthetase; lipid A disaccharide synthase; mannosyl transferase; membrane-bound lytic transglycosylase A; methylenettrahydrofolate dehydrogenase; oligopeptide transport system permease protein; pencillin-binding protein lA; photosystem II PsbT protein; plastocyanin; protease IV; protein export membrane protein SecD; protein-export membrane protein SecD; protein-export membrane protein SecD; protein-export membrane protein secD; protein-export membrane protein secD; ribonuclease II; ribulose bisphosphate carboxylase small subunit; ribunoce bisphosphate carboxylase sensory transduction histidine kinase; trNA-Ala; tRNA-Gly; tRNA-IIe; tRNA-Ser; thhol-specific antioxidant protein; thioredoxin triosephosphate isomerase; unknown function; Ycf33; Ycf38 gene. Synechocystis sp. (strain:PCC6803) DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Kaneko, T., Sato, S., Kotani, H., Tanaka, A., Asamizu, E., Nakamura, Y., Miyajima, N., Hirosawa, M., Sugiura, M., Sasamoto, S., Kimura, T., Hosouchi, T., Matsuno, A., Muraki, A., Nakazaki, N., Naruo, K., Yosuda, M., Suzaki, S., Shimpo, S., Takeuchi, C., Wada, T., Watanabe, A., Yasuda, M., Yasuda, M., and Tabata, S., Sequence analysis of the genome of the unicellular cyanobacterium Synechocystis sp. strain PCG6803. II. Sequence determination of the entire genome and assignment of potential protein-coding regions process. 3 (3), 109-136 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (33-Aug-1995) to the DDBJ/EMBL/GenBank databases. Satoshi Tabata, Kazusa DNA Research Institute, Gene Structure 2; 1532-3 Yanauchino, Kisarazu, Chiba 292, Japan (E-mail:tabata@kazusa.or.jp, Tel:0438-52-393, Fax:0438-52-3934)
Potential protein coding regions were assigned on the basis of similarity search of the ORFs and GeneMark analysis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation="MMQSIRSLIFOTPCPLCQKPSQDOLCRDCTGQILSHRFPRRFQQ
WQGNFPRFVWGQYEGQLRRALTVWKFEQQPDIGIWLGEQLAEGWLQQPQAKTKLRPQV
VPIPLMARKQAQRGFNQAERIAAGFCRLTGYVLHPQALQRVKDTQALFGLSPGDRRRE
LQSALATGPGFNTRRPWLILDDIITTGTTALEARRIMEEKGAKVLGIVAIAAPSFSQP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence analysis of the genome of the unicellular cyanobacterium Synechocystis sp. strain PCC6803. I. Sequence features in the 1 Mb region from map positions 64% to 92% of the genome DNA Res. 2 (4), 153-166 (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bacteria; Cyanobacteria; Chrococcales; Synechocystis.
[ toases I to 146271]
Kaneko,T., Tanaka,A. Sato,S., Kotani,H., Sazuka,T., Miyajima,N.,
Sugjura,M. and Tabata,S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="hypothetical protein"
/protein_id="BaA10110.1"
/db_xref="GI:1001485"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Synechocystis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="ORF_ID:s1r0388"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="ORF_ID:slr0769"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /db_xref="taxon:1143"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /strain="PCC6803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (bases 1 to 146271)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (bases 1 to 146271)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .1379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MELROO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Tabata, S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
```

/codon_start=1 /transl_table=11 /product="hypothetical protein" /protein_id="BAA10111.1"

CDS

cos

```
Search completed: May Job time: 2423 sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            75842 TTACA 75838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    68 gtcca 72
                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 φ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VMAFEGSAVNTSVLLEAGVRKAGAVTAALQEDALNIALVTLSKHYGVPQIVVRNSDGD
FAEPYRLAGATHIISTTELALNRVINAIEYPQVDAMMHFEQGQIEVLKLSIPPNCTIV
GRSVAAIAQDPRFPSGTLIIGYQANAHEDLKIPNGNTLLEDGSTILAVTKPELVRQLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /translation="MCLICGLAIASGLTVTIPSEAQTISVNEFPPPVNRYQLGASNLG
NGVNQVTSVAELRDVQPSDWAFAALQSLVERYGCLVCYPDRTYRGDAEGTLRARPLSR
YEFAAGLNACLNTIEQLLQENVSVAQGDLDLLKKLAQDFQAELKQLAVRVDNLETRTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation="MKLAYMMYAGPAHIGTLRIASSFKNVHAIMHAPLGDDYFNVWRS
MLEREQNFTPVTTSVVDRQVLSRGSQEKVVDNIVRKDGEETPDLIVLTPTCTSSILQE
DLANFVDRAQMDAHCDVLLADVNHYRYNELQAGDRTLKQIVEFYIKKARKQGNLATEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KYDADWFRAEVSEYCDEVLISEDNGAIADAIARIEPAAIFGTOMERHVGKRLDIPCGV
IAAPIHIQNPPLGYKPFLGYEGTNQIADLVYNSFTLGMEDHLLEIFGGHDTKEVITKG
ISSDSDLGWHSTAQAELNKVPGFVRGKVKRNTEKFARERGLSEITLEVMYAAKEAVGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YTDLVDTLTPPTTADDALGIPSRFGEYDPVYRRGGGGGGFNWQITPTVQLSVGYLATN
PNDPDPGNGLFNGGYHTLAQLAYQTADGGIGFTYSRSYFPAGNTDLMAGTGSLLAIQP
                                                                                                                                                                                                                                                                                                                                                            /translation="MATTLINHIEITPGTCGGKPRIAGHRITVQDIVIWHERMGLSPD
EIVHHYPSITLADVYAALSYYHDHLEEIRQGIIDDEIFAEEMRSSTPSLMEAKLRKVH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LQFAGSEGRVIFTQDTDFLKLAQSSPDHTGIAYCSQRNKSIDQVIQGLVLAMWEILEPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REIGLMTARYLQEEFAQPYVDITPMGVVETARCIRKMQQVLNQQGFDVNYEDFI
RHVSQAAWFSRSIDCQNLTGKKAVVFGDNTHAAAMTKILAREMGIHVVLAGTYC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'translation-"MYILIGGMGSMGSNLAKNLLKMGHTVAAVDTDPLACQYAREKIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RTRLQFSNFLNGVEQTGTNMTRFNYDDNSNNNVEVSHLWYRTPLTDNLTLRLGTVGVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FGEVIATAGNFYTLQGYYRITPHVQIHGWGGFVEAQAQGGGLSNLSNGVGGTVLRDVS
WNSSAIWYGLVGISFPDVGGEGNLPGIALGIPPTVTASNLPGAVGQTTPYHLEAFYRI
/db_xref="GI:1001486"
/translation="MQKQVSPLARVALWLGGVSLTATSLVIPTAAQAQSSLNGGSAIP
                                                           PLKPIPESTYTPPAAPTSTPSNPTSQALATHIVLVLGERKVYAYQNDKVLASYPVAVG
KKGWETPQGNFQVIQMVENPVWENPWNGKKVAASLDGPIGIRWIGFWSDGKNTIGFHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /translation="MANRIKFHLDENISYSIALGLRHRSLDVTTTPETGLLGVSDQEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TAKPSVNLIGFTTLGFHNQHDCTELKRLMADLGIEVNLILPEKATVDQLAKIPQAWFN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FLEDHQFSVTTKLYGQTITSLDKVFGDRVGGGSNEFQTQFAYRVRFNLETSFTGKDLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product="protochlorophyllide reductase ChlB subunit"
/protein_id="BAA10114.1"
                                                                                                                      PPKKHEHFLGTAASHGCVRMRNQDVVALFNMVQNGTPVRVVQKK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="hypothetical protein"
/protein_id="BAA10115.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product-"hypothetical protein"
/protein_id="BAA10116.1"
/db_xref="GI:1001491"
                                                                                                                                                                                                                                                                     product="hypothetical protein"
protein_id="BAA10112.1"
'db_xref="G1:1001487"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transl_table=11
/product="hypothetical protein"
/protein_id="BAA10113.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(4750. .6390)
/note-"ORF_ID:s110772"
                                                                                                                                     1504. .1824
/note="ORF_ID:slr0770"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="ORF_ID:slr0773"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="ORF_ID:s1r0772"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="ORF_ID:slr0771"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'db_xref-"GI:1001490"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="GI:1001489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GI:1001488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /transl_table=11
                                                                                                                                                                                                                                            /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2375. .3901-
/gene="chlB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2375. .3901
/gene="chlB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .4713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'db_xref='
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMCNHIEF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DFMGLCQS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4033,
```

CDS

CDS

ö

```
PTKEI PQIDNDSLVAVKTVIENRVNALGVSEPLVQTAGEDKIVVQLPGVTDPGQAERI
LGGTAQLEFQQQRPGTEGEFQAEYSIKRQLDAELENLRRSGASPENSDRLEELIKAKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GRSLGVFLDNDLISAPVVGVEFANTGITGGAAVITGNFTIDTANDLAVQLRGGSLPFP
VEVVENRTVGATLGQESIRRSLVAGFVGLVLVLVFMAVYYRLPGIVADISLMIYAVLT
                                                                                                                                                                                                                                                                                                                                                                                                          QOEVGINVIEYYSSYLWRSVGFTEEKSLLITVITGFINILTTLYAIAFYDKFGRKPLL
LMGSIGWTITLGILSVVFGGATVVNGOPTLTGAAGIIALVTANLYVFSFGFSWGPIVW
VLLGEMFNNKIRAAALSVAAGVQWIANFIISTTFPPLLDTVGLGPAYGLYATSAAISI
                                                                                                                                                                                                                            /protein_id="BAA10117.1"
/db_xref="GI:1001492"
/translation="MNPSSSPSQSTANVKFVLLISGVAALGGFLFGFDTAVINGAVAA
                                                                                                                                                                                                                                                                                                          LOKHPOTDSILITGLSVSLALLGSALGAFGAGPTADRHGRIKTMILAAVLFTLSSIGSG
LPFTIWDFIFWRVLGGIGVGAASVIAPAYIAEVSPAHLRGRIGSLQQLAIVSGIFTAL
                                                                                                                                                                                                                                                                                                                                                               LSNWFIALMAGGSAQNPWLFGAAAWRWMFWTELIPALLYGVCAFLIPESPRYLVAQGQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation="MQRLRWLLLLIVVLVIGASFVLVKLPLQLGLDLRGGAQLTIEVQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LAAFALVGVTLTLPGIAGFILSIGMAVDANVLIFERTREELRAGNTLYRSVEAGFFRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FSSILDSNVTTLIACAALFWFGSGLVKGFALTLAIGVMVSLFTALTCSRTLLLVIVLS
                                                                                                                                                                                                                                                                                                                                                                                             GEKAAA1LWKVEGGDVPSRIEEIQATVSLDHKPRFSDLLSRRGGLLPIVWIGMGLSAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ESNKALLALFEPMGLTGKNLTDARPSPNQSGTAWEVALRFDEEGGOKFAELTQAVAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 146271;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="protein-export membrane protein SecD"
/protein_id="BAA10118.1"
/db_xref="G1:1001493"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
QLNDNISITPGFWVVLNPEANSNNATQYVGHIRTSFLF"
complement(6482. .7888)
                                                                                                                                                                                                            transport protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 28.2; DB Pred. No. 27; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LPKVRQNPRLFCPNLSSVTAKS"
                                                                                                                              /note="ORF_ID:s110771"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="ORF_ID:slr0774"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5, 2001, 22:04:19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FFIWFFVKETKGKTLEQM"
                                                                                                                                                                                                            /product="glucose
                                                        /gene="glcP"
complement(6482.
                                                                                                                                                                                   /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8186. .9604
/gene="secD"
8186. .9604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="secF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 35.2%;
Best Local Similarity 64.6%;
Matches 42; Conservative
                                                                                                           /gene="glcP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8186. .9604
/gene="secD'
```

gene

```
GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
```

OM protein - protein search, using sw model

May 3, 2001, 15:51:41; Search time 12.84 Seconds (without alignments) 112.397 Million cell updates/sec Run on:

US-09-426-776-10 96 Title: 'Perfect score:

1 MRVLVLALAVALAVGDGSNLG 21 Sequence:

BLOSUM62 Gapop 10.0 , Gapext 0.5 Scoring table:

198801 seqs, 68722935 residues Searched:

198801 Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 200000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Database :

PIR_67:* 1: pirl:* 2: pir2:* 3: pir3:* 4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Description	vitellogenin precu	exeD protein - Aer		pro	-	glycerol-3-phospha	sphingomyelin phos		protein L precurso	hypothetical prote	beta-casein precur	hypothetical prote	_	brp protein [impor	transpor	protein serine/thr	transforming growt	probable adenosine	hypothetical 7.4 k	-		q	hypothetical profe	•~	hypothetical prote	probable cytochrom	probable motE prot	sulfa	
ID	T31095	S46963	T43144	T25169	T41724	H75251	806958	A39825	S54396 · ·	B75353	JC1384	C70551	H82637	T44816	H75561	T42070	152996	T46328	A65210	C83125.	T03864	A31770	A64442	JH0472	D69404	D64181	C70576	8	Н65125
DB	7	~	7	~	~	~	7	-	~	7	~	~	~	~	~	~	~	~	7	~	7	7	7	~	~	~	~	7	7
Length	1788	678	1687	330	691	328	585	629	992	127	222	273	346	359	583	598	683	729	80	310	893	168	174	258	297	378	460	220	654
& Query Match	85.4	•	Š	ė.	46.9			٠	•	4	44.8	44.8	4	44.8	4.	44.8	44.8	44.8	44.3	.44.3	44.3	43.8	٠	•		•	٠	43.8	43.8
Score	83	53	53	45	45	44	44	44	. 44	43	43	43	43	43	43	43	43	43	42.5	ς.	•	42	42	42	42	42	42	42	42
Result No.	н	. 7	m	₹	S	و.	7	æ	σ	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	56	27	28	53

C;Species: Aeromonas salmonicida
C;Date: 06-Jan-1995 #sequence_revision 06-Jan-1995 #text_change 08-Oct-1999
C;Accession: 139678; \$46963
R;Karlyshev, A.V.; MacIntyre, S.
Gene 158, 77-82, 1995
A;Title: Cloning and study of the genetic organization of the exe gene cluster of A;Reference number: 139675; MUID:95309729
A;Reference number: 139678
A;Reference number: 139678
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DMA

exeD protein - Aeromonas salmonicida

RESULT S46963 A;Residues: 1-678 <RES> A;Cross-references: EMBL:X80505; NID:g516349; PIDN:CAA56668.1; PID:g516351 C:Genetics: A;Gene: exeD

ö

Gaps ó;

55.2%; Score 53; DB 2; Length 678; 60.0%; Pred. No. 4.1; 5; Indels tive 3; Mismatches 5; Indels

Ouery Match 55.2 Best Local Similarity 60.0 Matches 12; Conservative

2 RVLVLALAVALAVGDGSNLG 21

δŏ

cytochrome D ubique hypothetical protects beta-lactoglobuline beta-casein precurbeta-casein precurbeta-casein precurbeta-casein precurbeta-casein precurbeta-casein precurbeta-casein precurbeta-casein precurbeta-casein precurbeta-casein precurby-a-catylquocshypothetical protecheme or urpab protein precalbumin-binding preprobable membrane probable membrane hypothetical prote	ALIGNMENTS T31095 vitellogenin precursor - Oreochromis aureus vitellogenin precursor - Oreochromis aureus C.Species: Oreochromis aureus C.Species: Oreochromis aureus C.Accession: T31095 R.Lim, E.H.; Lam, T.J.; Ding, J.L. Submitted to the EMBL Data Library, August 1997 A.Description: Cloning of full-length Oreochromis aureus vitellogenin cDNA and its A.Reference number: Z20978 A.Reference number: Z20978 A.Status: preliminary A.Accession: T31095 A.Status: preliminary A.Residues: 1-1788 <lim> A.Residues: 1-1788 <lim> A.Status: preliminary A.Status</lim></lim>	ore 82; DB 2; Length 1788; 8d. No. 0.00062; Mismatches 1; Indels 0; Gaps 0;
B81721 D75506 LGGT LGSH KBB0327 KBB0327 KBH0 MD564 F69147 G82956 S18387 A55377 A55377 A55377 C83025 C69283	ALIGNME omis aureus rision 19-M L. Cy, August ength Oreoc	Scc Pre 0;
44444444444444444444444444444444444444	chrom_revious J.L. J.L. brary l-len 7250;	85.4%; 95.0%; iive GSNL 20
351 109 180 222 224 226 226 231 247 312 313 313 313 314 315 316 317 317 317 317 317 317 317 317 317 317	or Oreochromis is aureus #sequence_revisic J.; Ding, J.L. L. Data Library, R ng of full-length R of full-length A mg of full-length R of full-length	85.4 larity 95.0 Conservative LAVALAVGDGSNI LAVALAVGDQSNI LAVALAVGDQSNI
44444444444444444444444444444444444444	n precursor - Oreochromis Oreochromis aureus May-2000 #sequence_revisi : T31095 . Lam, T.J.; Ding, J.L o the EMBL Data Library, . on: Cloning of full-lengt, . number: 220978 : T31095	<u>i</u> 4.−4.
4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	RESULT 1 T11095 vitellogenin precursor Oreochromi C;Species: Oreochromis aureus C;Date: .19-May-2000 #sequence_revis C;Date: .19-May-2000 #sequence_revis C;Accession: T11095 R;Lim, E.H.; Lam, T.J.; Ding, J.L. R;Lim, E.H.; Lam, T.J.; Ding, J.L. A;Description: Cloning of full-leng A;Befrance number: Z20978 A;Accession: T11095 A;Accession: T11095 A;Actatus: preliminary A;Katus: preliminary A;Katus: preliminary A;Kesidues: 1-1788 <lim>A;Cross-references: EMBL:AF01750; C;Superfamily: vitellogenin</lim>	ю Ü
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	RESULT 1 T31095 vitellogenin C;Species: Or C;Accession: R;Lim, E.H.; submitted to A;Description A;Reference n A;Re	Query M Best Lo Matches Qy 1
50.	'	

```
glycerol-3-phosphate dehydrogenase, NAD(+)-dependent - Deinococcus radiodurans (stra:
C;Species: Deinococcus radiodurans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GB:AE000513; NID:g6460446; PIDN:AAF12158.1; PID:g646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sphingomyelin phosphodiesterase, acidic, inactive splice form 2 - human N'Alternate names: acid sphingomyelinase, splice form 2 c.Species: Homo saptens (man) C.Date: 22-Jan-1993 #sequence_revision 24-Nov-1999 #text_change 21-Jan-2000 C;Accession: S06958; A39825 RSC Aluchman, E.H.; Levran, O.; Suchi, M.; Ferlinz, K.; Reinke, H.; S. Richitern, L.E.; Schuchman, E.H.; Levran, O.; Suchi, M.; Ferlinz, K.; Reinke, H.; S. Ritle: Isolation of cDNA clones encoding human acid sphingomyelinase: occurrence c.A.;Reference number: S06957; MUID:90060003 A;Accession: S06958 A;
                                                                                                                                                                                                        A;Cross.references: EMBL:AL121770; PIDN:CAB57447.1; GSPDB:GN00066; SPDB:SPAC821.13c
A;Experimental source: strain 972h-; cosmid c821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             G;Species: Deinococcus radiodurans
C;Date: 03-Dec-1999 #sequence_revision 03-Dec-1999 #text_change 17-Mar-2000
C;Accession: H75251
R;White, O.; Eisen, J.A.; Heidelberg, J.F.; Hickey, E.K.; Peterson, J.D.; Dodson, M.; Shen, M.; Yahanthevan, J.J.; Lam, P.; McDonald, L.; Utterback, T.; Zalewski, S.; Smith, H.O.; Venter, J.C.; Fraser, C.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Title: Genome sequence of the radioresistant bacterium Deinococcus radiodurans A;Reference number: A75250; MUID:20036896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 328;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 44; DB 2;
Pred. No. 44;
3; Mismatches 6
                                                                            A; Accession: T41724
A; Status: preliminary: translated from GB/EMBL/DDBJ
A; Molecule type:
A; Residues: 1-691 <RIE>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Map position: 1
C; Superfamily: glycerol-3-phosphate dehydrogenase
          submitted to the EMBL Data Library, October 1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. 58;
2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 45;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Accession: H75251
A; Status: preliminary
A; Molecule type: DNA
A; Residues: 1-328 < WHI>
A; Cross references: GB: AE002091; GB
A; Experimental source: strain R1
C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    45.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            46.9%;
ilarity 64.3%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3 VLVLALAVALAVGDGSNLG 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 || ||:|||:|
362 LEKAVTLAIGDGAN 375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6 LALAVALAVGDGSN 19
                                             A; Reference number: 222012
                                                                                                                                                                                                                                                                                                      A Gene: SPDB:SPAC821.13c
A Map position: 1
C; Keywords: hydrolase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                            RiLaFleur, G.J.; Hoch, K.L.; Denslow, N.; Byrne, B.M.; Wallace, R.A. submitted to the EMBL Data Library, September 1996
A; Description: Derivation of oocyte and egg proteins from parental vitellogenins in Fund
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   probable adenosinetriphosphatase (EC 3.6.1.3) SPAC821.13c [similarity] - fission yeast C;Species: Schizosaccharomyces pombe C:Species: Schizosaccharomyces pombe C:Date: 20-Oct-2000 #sequence_revision 20-Oct-2000 #text_change 03-Nov-2000 C;Accession: T41724 R;R!Beger, M.; Lyne, M.; Rajandream, M.A.; Barrell, B.G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Cross-references: EMBL:281129; PIDN:CAB03405.1; GSPDB:GN00023; CESP:T23F1.6 A;Experimental source: clone T23F1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     vitellogenin II precursor - mummichog
C;Species: Fundulus heteroclitus (mummichog)
C;Date: 11-Jan-2000 *sequence_revision 11-Jan-2000 *text_change 18-Feb-2000
C;Accession: T43144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cispecies: Caenorhabditis elegans
Cispecies: Caenorhabditis elegans
Cispecies: Caenorhabditis elegans
Cispecies: Tailog
Cispecies: Tailog
Similarison, J
Submitted to the EMBL Data Library, October 1996
A;Reference number: 21990
A;Reference number: 21990
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-330 <WIL>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 1687;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 330;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    hypothetical protein T23F1.6 - Caenorhabditis elegans
                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Accession: T43144
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 53; DB 2
Pred. No. 8.7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     46.9%; Score 45; DB
45.0%; Pred. No. 31;
tive 5; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1; Mismatches
352 QVLVEAIIVEIADGDGLNLG 371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      55.2%;
75.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 MRVLVLALAVALAVGDGSNL 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 55.2
Best Local Similarity 75.0
Matches 12; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MRVLVLALAVALAVGD 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Reference number: 222316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C; Superfamily: gliadin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Gene: CESP:T23F1.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Map position: 5
A; Introns: 16/3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
අු
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
```

E.

ö

Gaps

ö

Ö

ö

Gaps

ö

```
A;Cross-references: EMBL:L04466; NID:9150673; PIDN:AAA67503.1; PID:9150674
                                                       A;Molecule type: mRNA
A;Residues: 128-629 <QUI>
A;Cross-references: EMBL:X52678; NID:928879;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1-992 <MUR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Residues:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
S54396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Molecule type: mRNA
A; Residues: 1-629 < SGHS
A; Oross-references: GB:M59916; NID:q179094; PIDN:AAA58377.1; PID:g179095
A; Cross-references: GB:M59916; NID:q179094; PIDN:AAA58377.1; PID:g179095
A; Note: polymorphisms were demonstrated at positions 322 and 506
A; Note: polymorphisms were demonstrated at positions 322 and 506
A; Note: polymorphisms were demonstrated at positions 322 and 506
A; Ida, H.; Rennert, O.M.; Eto, Y.; Chan, W.Y.
J. Blochem. 114, 15-20, 1993
A; Title: Cloning of a human acid sphingomyelinase cDNA with a new mutation that renders A; Reference number: JX0276
A; Molecule type: mRNA
A; Residues: 1-35,38-156, 'R',158-321, 'T',323-505,'G',507-629 < IDA>
A; Molecule type: mRNA
A; Residues: 1-35,38-156,'R',158-321,'T',323-505,'G',507-629 < IDA>
A; Note: the authors translated the codon CTC: for residue 8 as Thr and ACC for residue 8 A; Note: the authors translated the codon CTC: for residue 8 as Thr and ACC for residue 8 A; Note: the authors translated the codon CTC: for residue 8 A; Note: the authors translated the codon CTC: for residue 8 A; Note: the subors translated the codon CTC: for lesidue 8 A; Note: the subors translated the codon CTC: for lesidue 8 A; Note: the subors translated the codon CTC: for lesidue 8 A; Note: the subors translated the codon CTC: for lesidue 8 A; Note: the subors translated the codon CTC: for lesidue 8 A; Note: the subors translated the codon CTC: for lesidue 8 A; Title: Isolation of cDNA clones encoding human acid sphingomyelinase: occurrence of all A; Reference number: S06957; MUID:90060003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sphingomyelin phosphodiesterase (EC 3.1.4.12), acidic, splice form 1 precursor - human N.Alternate names: acid sphingomyelinase (S.Species: Homo saplens (man) (S.Species: Homo saplens (man) (C.Species: Homo saplens (man) (C.Species: 10-Mar-1992 #sequence_revision 07-Jul-1995 #text_change 24-Nov-1999 (C.Accession: S27009; S36357; A39825; JX0276; S06957; I55567; A42801; B42801; C42801; D42 (C.May Riber, Hope-Seyler 373, 1233-1238, 1992 (A.Title: Molecular cloning of the acid sphingomyelinase of the mouse and the organizatic A.Reference number: S27009; MUID:93183402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Residues: 1-321, 'T', 323-629 <HOF>
A; Residues: 1-321, 'T', 323-629 <HOF>
A; Residues: 1-321, 'T', 323-629 <HOF>
A; Cross-references: EMHS: X63600; NID:9556808; PIDN:CAA45145.1; PID:9556809

R; Schuchman, E. H.; Suchi, M.; Takahashi, T.; Sandhoff, K.; Desnick, R.J.
J. Blol. Chem. 266, 8531-8539, 1991
A; Title: Human acid sphingomyelinase. Isolation, nucleotide sequence, and expression of A; Reference number: A39825; MUID:91217097
                                                                                                                                                                 A HOLOCULE type: mRNA
A; Residues: 1-362, IGGTYALSPYPGLRLISLNMNFCSRENFWLL', INSTDPAGQLOWLVGELQAAEDRGD', 375-585
A; Residues: 1-362, IGGTYALSPYPGLRLISLNMNFCSRENFWLL', INSTDPAGQLOWLVGELQAAEDRGD', 375-585
A; Cross-references: GB:M59916; NID:9179094; PIDN:AAA83377.1; PID:9179095
C; Comment: This form lacked catalytic activity when expressed in COS-1 cells. Its.functics.ccccomment: For the active splice form 1, see PIR:A39825.
C; Comment: For the active splice form 1, see PIR:A39825.
A; Genetics:
A; Genetics:
A; Genetics:
A; Genetics:
A; Cross-references: GDB:128144; OMIM:257200
A; Map position: 11p15.4-11p15.4
A; Introns: 104/3; 362/2; 375/3; 401/2; 450/1
C; Superfamily: acid sphingomyelinase; phosphoesterase core homology; saposin repeat homology csaposin repeat homology capabatage core capabatage core homology capabatage core capabatage co
           of
A:Title: Human acid sphingomyelinase. Isolation, nucleotide sequence, and expression A:Reference number: A39825; MUID:91217097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 585;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      submitted to the EMBL Data Library, December 1991
A;Reference number: S36357
A;Accession: S36357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB
71;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 44; DB Pred. No. 71; 2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Residues: 1-629 <NEW>
A; Cross-references: EMBL:X63600; NID:9556808
R; Hofmann, K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        45.8%;
ilarity 71.4%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3 VLVLALAVALAVGD 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     36 VLALALALALSD 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
nes 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Accession: S27009
                                                                                                                               A; Accession: A39825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
```

```
A;Genes GDB:128144; OMIM:257200
A;Gross-references: GDB:128144; OMIM:257200
A;Map position: 11p15.4-11p15.4
A;Introns: 104/3; 362/2; 419/3; 445/2; 494/1
A;Note: a defect in this gene may result in Niemann-Pick disease
C;Complex: monomer
C;Co
A;Cross-references: EMBL:X52678; NID:g28879; PIDN:CAA36901.1; PID:g28880
A;Note: parts of this sequence were confirmed by peptide sequencing
R;Levran, O.; Desnidck, R.J.; Schuchman, E.H.
J. Clin. Invest. 88, 806-810, 19310, 1931
A;Title: Niemann-Pick type B disease. Identification of a single codon deletion in A;Reference number: 155567; MUID:91358737
A;Accession: 155567
A;Accession: 155567
A;Accession 155567
A;Accession 155507
A;Accession 155207
A;Accession 155207
A;Accession 155207
A;Accession 155207
A;Actus: Lanslation not shown; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 119-120, H', 122 <LEVY
A;Cross-references: GB:555766; NID:g234719; PIDN:AAB19680.1; PID:g234720
A;Cross-references: GB:555766; NID:g234719; PIDN:AAB19680.1; PID:g234720
A;Title: Identification and expression of five mutations in the human acid sphings
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            opathic and non-neuronopathic forms.
A;Reference number: A42801; MUID:92316934
A;Contents: annotation; characterization of mutations
A;Contents: annotation; characterization of mutations
A;Note: substitution of Ile for 382-Met or Ser for 383-Asn result in complete inaction and lead to milder (type B) disease
C;Comment: Two isoforms, neutral and acidic, have been identified. The acidic iso:
C;Comment: For the inactive splice form 2, see PIR:S06958
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GOWa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C.Species: Peptostreptococcus magnus
A;Variety: strain 3316
C;Date: 27-Oct-1996 #sequence_revision 13-Mar-1997 #text_change 15-Oct-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C, Accession: S54396
R; Murphy, J.P.; Duggleby, C.J.; Atkinson, M.A.; Trowern, A.R.; At Machy, J.P.; Duggleby, C.J.; Atkinson, M.A.; Trowern, A.R.; At A; Title: The functional units of a peptostreptococcal protein L. A; Reference number: S54396; MUID:95020613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1; Length 629;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein L precursor - Peptostreptococcus magnus (strain 3316)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Accession: S54396
A; Status: preliminary; nucleic acid sequence not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                45.8%; Score 44; DB 71.4%; Pred. No. 75; Live 2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity 71.4
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3 VLVLALAVALAVGD 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Gene: GDB: SMPD1
```

4

D.; Guran : Holroyé

ger

```
Risingson, A.J.G.; Rednach, F.C.; Arruda, P.; Abreu, F.A.; Acencio, M.; Alvarenga, Briones, M.R.S.; Bueno, M.R.P.; Camargo, A.A.; Camargo, L.E.A.; Carraro, D.M.; Carre as-leto, E.; Docena, C.; El-Dorry, H.; Facincani, A.P.; Ferreira, A.J.S.
submitted to GenBank, June 2000
A.; Authors: Ferreira, V.C.A.; Ferro, J.A.; Fraga, J.S.; Franca, S.C.; Franco, M.C.; I
J.D.; Junquelra, M.L.; Kemper, E.L.; Kitajima, J.P.; Krieger, J.E.; Kuramae, E.E.; Chado, M.A.; Marcins, M.Y.; Marcins, E.L.; Marcins, A.M.B.N.; Madeira, H.M.F.; Marrino, C.L.; Marques, M.V.; Martins, E.G.; Nunes, L.R.; Oliveira, M.A.; de Oliveira, M.C.; de Oliveira, R.C.; Palmieri, Rodrigues, V.; Rosa, A.J. de M.; de Rosa Jr., V.E.; de Sa, R.G.; Santelli, R.V.; San, Archross; de Silva, A.C.R.; de Silva, A.M.; Silva, Jr., Wa.; de Silva, S.; Vettore, A.J.
A.Reference number: A59328
                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Cross-references: GB:295556; GB:AL123456; NID:g3261778; PIDN:CAB08925.1; PID:e3165
A;Experimental source: strain H37Rv
C;Genetics:
A;Gene: Rv2507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Cross-references: GB:AE004001; GB:AE003849; NID:99106864; PIDN:AAF84610.1; GSPDB:C
"ypounetical protein Rv2507 - Mycobacterium tuberculosis (strain H37RV)
C;Species: Mycobacterium tuberculosis
C;Date: 17-Jul-1998 #sequence_revision 17-Jul-1998 #text_change 22-Oct-1999
C;Accession: C70551
R;Cole, S.T.; Brosch, R.; Parkhill, J.; Garnier, T.; Churcher, C.; Harris, D.; Go
C; Connor, R.; Davies, R.; Devlin, K.; Feltwell, T.; Gentles, S.; Hamlin, N.; Holr.
Rajandream, M.A.; Rogers, J.; Rutter, S.; Seeger, K.; Skelton, S.; Squares, S.
A;Authors: Sqares, R.; Sulston, J.E.; Taylor, K.; Whitehead, S.; Barrell, B.G.
A;Title: Deciphering the biology of Mycobacterium tuberculosis from the complete g
A;Reference number: A70500; MUID:98295987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           glycerol-3-phosphate dehydrogenase XF1802 [imported] - Xylella fastidiosa (strain C.Species: Xylella fastidiosa (strain C.Species: Xylella fastidiosa (strain 20-Aug-2000 #text_change 02-Sep-2000 $$Accession: H82637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R;anonymous, The Xylella fastidiosa Consortium of the Organization for Nucleotide
Nature 406, 151-157, 2000
                                                                                                                                                                                                                                                                                                                                                                         A; Status: preliminary; nucleic acid sequence not shown; translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Title: The genome sequence of the plant pathogen Xylella fastidiosa.
A;Reference number: A82515, MUID:20365717
A;Note: for a complete list of authors see reference number A59328 below
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C;Superfamily: glycerol-3-phosphate dehydrogenase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 43; DB 2
Pred. No. 52;
5; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 7
63;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 43;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity 50.0%;
Matches 8; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         44.8%;
ilarity 64.3%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            :||:|| :||
120 LLVVALVIALVIANGS 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3 VLVLALAVALAVGDGS 18
                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Residues: 1-273 <COL>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Status: preliminary
A; Molecule type: DNA
A; Residues: 1-346 <SIM>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Accession: H82637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Gene: XF1802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C;Species: Capra aegagrus hircus (domestic goat)
C;Date: 10-Jun-1993 #sequence_revision 10-Jun-1993 #text_change 23-Feb-1997
C;Date: 10-Jun-1993 #sequence_revision 10-Jun-1993 #text_change 23-Feb-1997
C;Date: 10-Jun-1994
R;Roberts, B: DiTullio, P:; Vitale, J:; Hehir, K.; Gordon, K.
Gene 121, 255-262, 1992
A;Title: Cloning of the goat beta-casein-encoding gene and expression in transgenic mice
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | A;Residues: Î-127 <WHI>|
A;Cross-references: GB:AE002021; GB:AE000513; NID:g6459573; PIDN:AAF11348.1; PID:g645956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Title: Genome sequence of the radioresistant bacterium Deinococcus radiodurans R1. A;Reference number: A75250; MUID:20036896
                                                                                                                                                                                                                                                                                                                                                                                                                                   J.D.; Dodson,
T.; Zalewski,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                         hypothetical protein - Deinococcus radiodurans (strain R1)
C;Species: Deinococcus radiodurans
C;Date: 03-Dec_1999 #sequence_revision 03-Dec-1999 #text_change 26-May-2000
                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                       C; Accession: B75353
R; White, O.; Eisen, J.A.; Heidelberg, J.F.; Hickey, E.K.; Peterson, M.; Shen, M.; Vamathevan, J.J.; Lam, P.; McDonald, L.; Utterback, S.; Smith, H.O.; Venter, J.C.; Fraser, C.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C; Superfamily: Deinococcus radiodurans hypothetical protein DR1788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 127;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 222
                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2; Indels
                                  ed. No. 1.1e+02;
Mismatches 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 43; DB 7
Pred. No. 44;
3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB
28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A:Introns: 17/3; 26/3; 35/3; 45/3; 57/3; 221/3
C;Superfamily: beta-casein
C;Keywords: milk; phosphoprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 43;
Pred. No.
                                  Pred.
5; Mis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     44.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   44.8%;
                               Best Local Similarity 50.0%;
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Experimental source: strain R1
                                                                                                                   2 RVLVLALAVALAVGDGSN 19
                                                                                                                                                ::|: || |: || |:|
6 KLLMAALAGAIVVGGGAN 23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Molecule type: DNA
A;Residues: 1-222 <ROB>
A;Cross-references: GB:M90556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JC1384
beta-casein precursor - qoat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MRVLVLALAVALAV 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |:||:|| |||:
| MKVLILACLVALAI 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MRVLVLALAVALA 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MRILLVALAAALA 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Accession: JC1384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Accession: B75353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Map position: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Gene: DR1788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Gene: CSN2
                                                                                                                                                                    a
                                                                                                                   ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
```

9

ö

Gaps

; 0

Length 273;

š

ö

Gaps

ö

|||||: | || || 197 LAVAIGVADGMQLG 210

셤 δ

12

RESULT C70551

Length 346;

```
.MSC transporter, ATP-binding protein, MsbA family - Deinococcus radiodurans (strain R1) C; Species: Deinococcus radiodurans C; Species: Deinococcus radiodurans (c) and C; Species: Deinococcus radiodurans (c) accession: H75561 E; Requence_revision 03-Dec-1999 #text_change 17-Mar-2000 C; Accession: H75561 R; White, O.; Eisen, J.A.; Heidelberg, J.F.; Hickey, E.K.; Peterson, J.D.; Dodson, R.J.; M.; Shen, M.; Vamatherwan, J.J.; Lam, P.; McDonald, L.; Otterback, T.; Zalewski, C.; Massion C.; Massion C.; Massion C.; Fraser, C.M.
                                                                                               R;Betlach, M.; Friedman, J.; Boyer, H.W.; Pfeifer, F.
Nucleic Acids Res. 12, 7949-7959, 1984
A;Title: Characterization of a halobacterial gene affecting bacterio-opsin gene expressi
A;Reference number: 222850; MUID:85037955
A;Accession: T44816
A;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Cross-references: GB:AE001872; GB:AE000513; NID:g6457750; PIDN:AAF09688.1; PID:g645770
A;Experimental source: strain R1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Map position: 1
C;Superfamily: unassigned ATP-binding cassette proteins; ATP-binding cassette homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A.Title: Genome sequence of the radioresistant bacterium Deinococcus radiodurans Rl. A. Reference number: A75250; MUID:20036896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
brp protein [imported] - Halobacterium salinarum
C;Species: Halobacterium salinarum
C;Date: 21-Jan-2000 #sequence_revision 21-Jan-2000 #text_change 31-Jan-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 583;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 359;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4; Indels
                                                                                                                                                                                                                                                                  A; Molecule type: DNA
A; Residues: 1.359 <BET>
A; Cross-references: EMBL:X01081; PIDN:CAA25558.1
A; Note: the source is designated as Halobacterium halobium
C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 43; DB 2;
Pred. No. 65;
3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 43; DB 2;
Pred. No. 98;
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               44.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MRVLVLALAVALAVGDGSNL 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    44.8%;
58.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 RVLVLALAVALAVGDGS 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1: :|||| | ||| |:
26 RLSLLALAAAFAVGYGA 42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 44.8
Best Local Similarity 58.8
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 11; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: DNA
A; Residues: 1-583 <WHI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A:Accession: H75561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Gene: DR0096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
```

Search completed: May 3, 2001, 15:53:11 Job time: 90 sec

g

```
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 44; Conserv
Seattle
                                                                                                                                                                                                                                                                                                                                              USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                              FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOGY:
                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                     STREET:
CITY: Se
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-08-206-176-7
                                                                                                                                                                                                        JS-08-206-176-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGIH:
5, 2001, 21:25:01; Search time 65.18 Seconds (without alignments) 214.302 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                  Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 29,
Sequence 29,
Sequence 29,
                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 74
                                                                                                                                                                                                                                                                                                                                                                                Description
                                                                                                          1 attcacatccaccagccatg.....gggaccagtccaacttgggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                Issued_Patents_NA:*

: /cgn2_6/ptodata/1/ina/5A_COMB.seq:*

: /cgn2_6/ptodata/1/ina/5B_COMB.seq:*

: /cgn2_6/ptodata/1/ina/6A_COMB.seq:*

: /cgn2_6/ptodata/1/ina/6B_COMB.seq:*

:: /cgn2_6/ptodata/1/ina/6B_COMB.seq:*

:: /cgn2_6/ptodata/1/ina/pcTUS_COMB.seq:*

:: /cgn2_6/ptodata/1/ina/pacxfiles1.seq:*
      GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                   hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-464-167-29
US-09-158-313-29
US-08-476-798-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-08-476-798-29
US-08-753-007A-3
US-09-398-496-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             08-752-760A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    08-444-818-63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -08-899-336-2
                                                                                                                                                     302621 seqs, 87301344 residues
                                                                                                                                                                                                                                                                                                                                                     SUMMARIES
                                                                                                                                                                                                             Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                         nucleic search, using sw model
                                                                                                                           IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                                                                                       US-09-426-776-11
80
                                                                                                                                                                                     Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                               DB
                                                                                                                                                                                                                                                                                                                                                                      Query
Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2018
35081
274
1788
                                                                                                                                                                                                                                                                                                                                                                                                                                          Total number of
                                                                                         Title:
Perfect score:
                                                                                                                           Scoring table:
                                        nucleic
                                                                                                          Sequence:
                                                                                                                                                     Searched:
                                                                                                                                                                                                                                                 Database
                                                         Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
```

```
Appl
Appl
Appl
                                                                                                                                                                                                                                              Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
sedneuce sed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ó;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 10807;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Dalrymple, Michael A
APPLICANT: Prunkard, Donna E
APPLICANT: Foster, Donald C
TITLE OF INVENTION: Production of Fibrinogen in Transgenic
NUMBER OF SEQUENCES: 27
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentII Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/206,176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 28.4; DB 1;
Pred. No. 0.65;
0; Mismatches 26;
                                                                                                                                                                                                                                    US-08-239-276-10
US-08-468-579B-10
US-08-468-577B-10
US-08-756-806A-65
US-09-143-214-65
                                                             US-08-444-818-123
US-08-444-818-176
US-07-910-760-9
US-08-440-519-9
PCT-US91-02225-9
                                                                                                                                                                                                                                                                                                                                                                                                              US-08-347-563A-1
US-08-485-942A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   08-488-214A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Parker, Gary E
REGISTRATION NUMBER: 31-648
REFERENCE/DOCKET NUMBER: 93-15
TELEPHONE: 206-541-8080 ext 322
TELEPHONE: 206-548-2329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE: 2ymoGenetics, Inc.
STREET: 4225 Roosevelt Way, N.E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IMMEDIATE SOURCE:
CLONE: ovine beta-lactoglobulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 7, Application US/08206176
Patent No. 5639940
.GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           35.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        . 10807 base pairs
nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: 206-548-2329
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                 9185
9379
9401
9401
3311
3311
3311
2458
2793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Garner, Ian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                double
```

ő

```
Strijker, Rein
Heyneker, Herbert I
Platenburg, Gerald
                                                                            Lee, Sang He
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               814 TCATCG 819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  73 acttgg 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 4
US-08-461-333-29
                                                                                                                                                                                                                                                 COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
9 ccaccagccatgagggtgcttgtactagctcttgctgtggctctcgcagtggggaccag 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 28.4; DB 2; Length 10807; Pred. No. 0.65;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                     APPLICANT: Foster, bonald C.
APPLICANT: Sprecher, Cindy A.
APPLICANT: Prunkard, Donna E.
TITLE OF INVENTION: PROTEIN C PRODUCTION IN TRANSGENIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/756,506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                   E: ZymoGenetics, Inc.
1201 Eastlake Avenue East
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 29, Application US/08154019
Patent No. 5633076
GENERAL INFORMATION:
                                                                                                                                         RESULT 2
US-08-756-566-5
Sequence 5, Application US/08756506
Patent No. 5905185
GENERAL INFORMATION:
APPLICANT: Garner, Ian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-
                                                                                                                                                                                                                                      Cottingham, Ian R.
Temperley, Simon M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTORNEY/AGENT INFORMATION:
NAME: Sawislak, Deborah A
REGISTRATION NUMBER: 37,438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELECOMMUNICATION INFORMATION: TELEPHONE: 206-442-6672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 35.5%;
Best Local Similarity 62.9%;
Matches 44; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INFORMATION FOR SEQ ID NO: 5: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 10807 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQUENCES: 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           206-442-6678
                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
ADDRESSEE: ZymoGenet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CLASSIFICATION: 800
                                                                                 111 | 1 | 1 | 4309 GCCATCATCG 4318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4309 GCCATCATCG 4318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                               69 tccaacttgg 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         69 tccaacttgg 78
                                                                                                                                                                                                                                                                                                                                                                                                                Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                               USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                            98102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 3
US-08-154-019-29
                                                                                                                                                                                                                                      APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-756-506-5
                                                                                                                                                                                                                                                                                                                                                                                              STREET:
                               q
                                                                                         g
   ð
                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
```

```
ö
                                                                     by Bovine Species and Transgenic Methods: 38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 27.6; DB 1; Length 824;
Pred. No. 0.67;
0; Mismatches 24; Indels
                                                   Recombinant Polypeptides
                                                                                                                                                          One Market Plaza, Steuart Tower, Suite 2000
                                                                                                                                                                                                                                                                                                                                               SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US 07/619,131
FILING DATE: 27-NOV-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/444,745
FILING DATE: 01-DEC-1989
ATTORNEY/AGENT INFORMATION:
NAME: Liebescheutz, Joe 0.
REGISTRATION NUMBER: 37,505
REFERENCE/DECKET NUMBER: 16994-00312
TELEPHONE: 415-543-9600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 15-UN-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/895,956
FILING DATE: 15-UN-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/619,131
                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/461,333
FILING DATE: 05-JUN-1995
APPLICATION NUMBER: US 08/077,788
                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US/08/154,019
FILING DATE: 16-NOV-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JMBER: US 08/077,788
15-JUN-1993
                          Krimpenfort, Paul J.A. ENTION: Production of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; Sequence 29, Application US/08461333
                                                                                                                                                                                                                                    ZIP: 94105
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
APPLICANT: Pieper, Frank
APPLICANT: Krimpenfort, Paul
TITLE OF INVENTION: Producti
TITLE OF INVENTION: by Bovin
NUMBER OF SEQUENCES: 38
CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Tc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; MOLECULE TYPE: DNA (genomic) US-08-154-019-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 34.5%;
Best Local Similarity 63.6%;
Matches 42; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX: 415-543-5043
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                        STREET: One Market F
CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                           OPERATING SYSTEM:
SOFTWARE: Patenti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 16
CLASSIFICATION:
                                                                                                                                                                                                                           USA
```

```
INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       814 TCATCG 819
   Patent No. 6013857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       73 acttgg 78
                                                                                                                                                                                                                                                                     COUNTRY:
                                                                                                               APPLICANT:
                                                                 APPLICANT:
                                                                                                                                                                                                                        STREET:
                                     APPLICANT
                                                                                                                                                                                                                                                       STATE:
                                                                                                                                                                                                                                          CITY:
                   GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                 DB 1; Length 824;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24; Indels
                                                                                                                                                                                                     ADDRESSEE: Townsend and Townsend and Crew
STREET: One Market Plaza, Steuart Tower, Suite 2000
                                                                                                                                                                                                                                                                                                            MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 27.6; DB Pred. No. 0.67; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME: Liebescheutz, Joe O.
REGISTRATION NUMBER: 37,505
REFERENCE/DOCKET NUMBER: 16994-003123
TELECOMMUNICATION INFORMATION:
TELEPHONE: 415-543-9600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US 07/895,956 FILING DATE: 15-JUN-1992 PRIOR APPLICATION DATA: APPLICATION NUMBER: US 07/619,131 FILING DATE: 27-NOV-1990 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US 07/444,745 FILING DATE: 01-DEC-1989 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US/08/461,333
FILING DATE: 05-JUN-1995
CLASSIFICATION: 800
                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US 08/077,788 FILING DATE: 15-JUN-1993 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-464-167-29; Sequence 29, Application US/08464167
                                            Strijker, Rein
Heyneker, Herbert L.
Platenburg, Gerald
Lee, Sang He
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
34.5%;
Best Local Similarity 63.6%;
Matches 42; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH: 824 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                              Pieper, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                            RIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
                                                                                                                                                                                                                                    CITY: San Francisco
STATE: California
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
              GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; MOLECULE TYPE:
US-08-461-333-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  814 TCATCG 819
; Patent No. 5741957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    73 acttgg 78
                                                                                                                                                                                                                                                                                  94105
                                                           APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                   STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ç
```

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13 cagccatgagggtgcttgtactagctcttgctgtggctctcgcagtgggggaccagtcca 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                              APPLICANT: Krimpenfort, Paul J.A.
TITLE OF INVENTION: Production of Recombinant Polypeptides
TITLE OF INVENTION: by Bovine Species and Transgenic Methods
NUMBER OF SEQUENCES: 38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                    E: Townsend and Townsend and Crew
One Market Plaza, Steuart Tower, Suite 2000
                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/464,167
FILING DATE: U5-JUN-1995
CLASSIFICATION: 800
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/077,788
FILING DATE: 15-JUN-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/895,956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ouery Match 34.5%; Score 27.6; Di
Best Local Similarity 63.6%; Pred. No. 0.67
Matches 42; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME: Liebescheutz, Joe O.
REGISTRATION NUMBER: 37,505
REFERENCE/DOCKET NUMBER: 16994-003124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US 07/895,956
FILING DATE: 15-UUN-1992
PRIOR PPLICATION DATA:
APPLICATION NUMBER: US 07/619,131
FILING DATE: 27-NOV-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/444,745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US 07/444,745
FILING DATE: 01-DEC-1989
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                            PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 6
US-09-158-313-29
; Sequence 29, Application US/09158313
                                                                                                                                                                                                                                                                                                                                                                           COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-
Platenburg, Gerald
Lee, Sang He
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELECOMMUNICATION INFORMATION:
TELEPHONE: 415-543-9600
TELEFAX: 415-543-5043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; MOLECULE TYPE: DNA (genomic)
US-08-464-167-29
                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 824 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                             Pieper, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEFAX: 415-543-5043 INFORMATION FOR SEQ ID NO:
                                                                                                                                       NUMBER OF SEQUENCES: 36
CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend a
                                                                                                                                                                                                                                      San Francisco
California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                      RY: USA
94105
```

ö

us-09-426-776-11.rni

STREET:

STATE:

```
APPLICANT: Krimpenfort, Paul J.A.
TITLE OF INVENTION: Production of Recombinant Polypeptides
TITLE OF INVENTION: by Bovine Species and Transgenic Methods
NUMBER OF SEQUENCES: 38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 27.6; DB 4; Length 824;
Pred. No. 0.67;
0; Mismatches 24; Indels (
                                                                                                                                                                                                                         E: Townsend and Townsend and Crew
One Market Plaza, Steuart Tower, Suite 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: Patentin Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE/DOCKET NUMBER: 16994-003125
TELECOMMUNICATION INFORMATION:
TELEPHONE: 415-543-9600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US 07/895,956
FILING DATE: 15-JUN-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/619,131
FILING DATE: 27-NOV-1990
PRIOR APPLICATION NUMBER: US 07/444,745
FILING DATE: 01-DEC-1989
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/077,788
FILING DATE: 15-JUN-1993
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: US/08/476,798 FILING DATE: 07-JUN-1995 CLASSIFICATION: 800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; Sequence 3, Application US/08753007A
                                                                                                                                                                                                                                                                                                                       ZIP: 94105
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
                                                   Platenburg, Gerald
Lee, Sang He
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME: Liebescheutz, Joe O. REGISTRATION NUMBER: 37,505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    34.5%;
63.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 63.63
Matches 42; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: 415-543-5043
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                  CORRESPONDENCE ADDRESS: ADDRESSEE: Townsend
                                                                                                                                                                                                                                                                 CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                     OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 07 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; MOLECULE TYPE:
US-08-476-798-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     814 TCATCG 819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            73 acttgg 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 8
US-08-753-007A-3/c
                                                                                                                                                                                                                                                                                                            COUNTRY:
                                                                     APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                           STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13 cagocatgagggtgcttgtactagctcttgctgtggctctcgcagtgggggaccagtcca 72
                                                                                                    APPLICANT: Krimpenfort, Paul J.A.
IITLE OF INVENTION: Production of Recombinant Polypeptides
TITLE OF INVENTION: by Bovine Species and Transgenic Methods
NUMBER OF SEQUENCES: 38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ouery Match

34.5%; Score 27.6; DB 3; Length 824;
Best Local Similarity 63.6%; Pred. No. 0.67;
Matches 42; Conservative 0; Mismatches 24; Indels
                                                                                                                                                                                                                  E: Townsend and Townsend and Crew
One Market Plaza, Steuart Tower, Suite 2000
                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/158,313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME: Liebescheutz, Joe O.
REGISTRATION NUMBER: 37,505
REFERENCE/DOCKET NUMBER: 16994-003125
FELECOMMUNICATION INFORMATION:
TELEPHONE: 415-543-9600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/895,956
FILING DATE: 15-JUN-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/619,131
FILING DATE: 27-NOV-1990
PRIOR APPLICATION NUMBER: US 07/444,745
FILING DATE: 01-DEC-1989
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA: APPLICATION NUMBER: 08/476,798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-08-476-798-29 Sequence 29, Application US/08476798
Strijker, Rein
Heyneker, Herbert L.
Platenburg, Gerald
Lee, Sang He
Pieper, Frank
                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                    MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 824 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX: 415-543-5043
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                     NUMBER OF SEQUENCES: 38
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                          San Francisco
California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            814 TCATCG 819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   73 acttgg 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE:
                                                                                                                                                                                                                                                                                                                       94105
                                                                                                                                                                                                                  ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-158-313-29
                                                                                                                                                                                                                                                                                                   COUNTRY:
```

ö

0; Gaps

g

ð 셤 ð us-09-426-776-11.rni

```
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/753,007
FILING DATE: 19-NOV-1996
APPLICATION NUMBER: 08/699,591
FILING DATE: 19-AUG-1996
ATONNEY/AGENT INFORMATION:
NAME: FASSe, J. Peter
REGISTRATION NUMBER: 32,983
REGISTRATION NUMBER: 32,983
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
                                                                                                                                  COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FRASTEQ Version 2.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/398,496
FILING DATE:
: 225 Franklin Street
Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS: LENGTH: 1607 base pairs
                                                           COUNTRY: US
ZIP: 02110-2804
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEFAX: 617-542-8906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RY: US
02110-2804
                                                                                                                                                                                                                                                                 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  708 CACAGAC 702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         68 gtccaac 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CITY: 1
STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8 tecaccagecatgagggtgettgtactagetettgetgtgggtggetetegeagtgggggacea 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 1607;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
APPLICANT: Gearing, David P.
APPLICANT: Busfield, Samantha J.
TITLE OF INVENTION: DON-1 GENE AND POLYPEPTIDES
TITLE OF INVENTION: AND USES THEREFOR
NUMBER OF SEQUENCES: 33
CORRESPONDENCE ADDRESS:
                                 APPLICANT: Gearing, David P.
APPLICANT: Busfield, Samantha J.
TITLE OF INVENTION: DON-1 GENE AND POLYPEPTIDES
TITLE OF INVENTION: AND USES THEREFOR
NUMBER OF SEQUENCES: 33
CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
STREET: 225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 25.4; DB 3;
Pred. No. 4.4;
0; Mismatches 26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE/DOCKET NUMBER: 07334/022001
FELECOMMUNICATION INFORMATION:
TELEPHONE: 617-542-5070
                                                                                                                                                                                                                                                                                                                   COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FastSEQ Version 2.0 .
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/753,007A
FILING DATE: 19-NOV-1996
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Fish & Richardson P.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/699,591
FILING DATE: 19-AUG-1996
ATTONNEY/AGENT INFORMATION:
NAME: FASSE, J. PELER
REGISTRATION NUMBER: 32,983
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-398-496-3/c; Sequence 3, Application US/09398496; Patent No. 6133423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HAME/KEY: Coding Sequence COGATION: 100CATION: 79...621.
GYHER INFORMATION: US-08-753-0074-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 31.8%;
Best Local Similarity 61.2%;
Matches 41; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS: LENGTH: 1607 base pairs
                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEFAX: 617-542-8906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                             02110-2804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        708 CACAGAC 702
                                                                                                                                                                                                 Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   68 gtccaac 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE:
                                                                                                                                                                                                 CITY: BOS
STATE: MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
```

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 1, Application US/08753007A
Sequence 1, Application US/0875307A
Sequence 1, Applicatio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 25.4; DI
Pred. No. 4.4;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADRESS:
ADDRESSEE: Fish & Richardson P.C.
STREET: 225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 31.8%;
Best Local Similarity 61.2%;
Matches 41; Conservative
                                                                                                                                                                                                                      NAME/KEY: Coding Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                    CCATION: 79...621; OTHER INFORMATION: US-09-398-496-3
TOPOLOGY: linear MOLECULE TYPE: CDNA
```

ö

```
GENE EXPRESSION REGULATORY DNA, EXPRESSION CASSETTE, EXPRESSION VECTOR AND TRANSGENIC PLANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8 tecaccagecatgagggtgettgtactagetettgetgtgggetetegeagtggggacea 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADDRESSEE: OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, ADDRESSEE: P.C. STREET: 1755 SOUTH JEFFERSON DAVIS HIGHWAY, SUITE 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: Patentin Release #1.0, Version #1.30
CUBRENT APPLICATION DATE:
US/08/899,336
FILING DATE: 23-JUL-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 25.4; DE Pred. No. 4.9; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP HEI 8-193433
FILING DATE: 23-JUL-1996
ATTORNEY AGENT INFORMATION:
NAME: OBLON, NORMAN F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STATE: VIRGINIA
COUNTRY: U.S.A.
ZIP: 22202
COMPUER READABLE FORM:
MEDUW TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
            APPLICATION NUMBER: 08/699,591
FILING DATE: 19-AUG-1996
ATTORNEY/AGENT INFORMATION:
NAME: Fasse, J. Peter
REGISTRATION NUMBER: 32,983
REFERENCE/DOCKET NUMBER: 07334/02
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617-542-8906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-899-336-2/c; Sequence 2, Application US/08899336; Patent No. 5955649; GENERAL INFORMATION:
                                                                                                                                                                                                INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 2467 base pairs
TYPE: nucleic acid
cTPANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: KURODA, HISAO
APPLICANT: ITO, KAZUTOSHI
TITLE OF INVENTION: GENE EX
TITLE OF INVENTION: EXPRESS
TITLE OF INVENTION: PLANT
NUMBER OF SEQUENCES: 8
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: Coding Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 31.8%;
Best Local Similarity 61.2%;
Matches 41; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAOHIKO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: HIROTA, NAOHIKKA APPLICANT: KIHARA, MAKOTO APPLICANT: KIHARA, MAKOTO APPLICANT: KURODA, HISAO
19-NOV-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION: 800
                                                                                                                                                                                                                                                                                                                                                                                                         ; LOCATION: 79...1893
; OTHER INFORMATION:
US-09-398-496-1
                                                                                                                                                                                                                                                                                                                               circular
                                                                                                                                                                                                                                                                                                                                              MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CITY: ARLINGTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        625 CACAGAC 619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                68 gtccaac 74
                                                                                                                                                                                                                                                                                                                               TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   685 rerecescacarsarsarscarerecerecrestritissererecastasses
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8 tccaccagccatgagggtgcttgtactagctcttgctgtgggctctcgcagtgggggacca 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 2467;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Gearing, David P.
APPLICANT: Busfield, Samantha J.
TITLE OF INVENTION: DON-1 GENE AND POLYPEPTIDES
TITLE OF INVENTION: AND USES THEREFOR
NUMBER OF SEQUENCES: 33
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 25.4;
Pred. No. 4.
                                                                                                                                                                                                                                                                        07334/022001
                                                           CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/753,007A
FILING DATE: 19-NOV-1996
CLASSIFICATION NUMBER: 08/69,591
FILING DATE: 19-NOV-1996
APPLICATION NUMBER: 08/699,591
FILING DATE: 19-NG-1996
ATTORNEY/AGENT INFORMATION:
REGISTRATION NUMBER: 32,983
REFERENCE/DOCKET NUMBER: 07334/022001
TELECHONE: 617-542-6970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US/09/398,496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       E: Fish & Richardson P.C. 225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA: APPLICATION NUMBER: 08/753,007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 1, Application US/09398496
Patent No. 6133423
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OPERATING SYSTEM: DOS
SOFTWARE: FastSEQ Version 2.0
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: Coding Sequence:
LOCATION: 79...1893
GTHER INFORMATION:
US-08-753-007A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER: IBM Compatible OPERATING SYSTEM: DOS
      IBM Compatible
                                                                                                                                                                                                                                                                                                                                                                       NFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS: LENGTH: 2467 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 31.8
Best Local Similarity 61.2
Matches 41; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY: US
ZIP: 02110-2804
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               circular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      625 CACAGAC 619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                68 gtccaac 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 11
US-09-398-496-1/C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
```

Gaps

26; Indels

```
Db 16175 GGGTACATGTTCTCGCCCTCGCGCTTGATCCCGCGGCTCGGCAGCAGCAGCACCCCCTGGGG 16117
                                     22 gggtgcttgtactagctcttgctgtggctctcgcagtgggggaccagtccaacttgggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 35081;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 63, Application US/08444818
Patent No. 6150087.
GENERAL INFORMATION:
APPLICANT: Chien, David Y.
TITLE OF INVENTION: NAINBY Diagnostics and Vaccines
UNMBER OF SEQUENCES 777
CORRESPONDENCE ADDRESS:
ADDRESSE: Chiron Corporation
STREET: 4560 Horton Street
CITY: Emeryville
                                                                                                                                                                                                    APPLICANT: Armentano, Donna
APPLICANT: Gregory, Richard J.
APPLICANT: Smith, Alan E.
TITLE OF INVENTION: CHIMERIC ADENOVIRAL VECTORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OFFRATING SYSTEM: DOS
SOFFWARE: FastSEQ Version 2.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/752,760A
FILLING DATE: 20-NOV-1996
                                                                                                                                                                                                                                                                                                                           E: Baker & Botts, L.L.P. 30 Rockefeller Plaza
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE/DOCKET NUMBER: A31385
TELECOMMUNICATION INFORMATION:
TELEPHONE: 212-705-5000
                                                                                                                    US-08-752-760A-1/c
; Sequence 1, Application US/08752760A
; Patent No. 5877011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 29.8%;
Best Local Similarity 62.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM COMPATIBLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH: 35081 base pairs TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            37; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Seide, Rochelle
REGISTRATION NUMBER: 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEFAX: 212-705-5020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES: 3
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: FILING DATE:
                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                          XY: U.S.A. 10112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 20 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                   New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 15
US-08-444-818-63/c
                                                                                                                                                                                                                                                                                                                         ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                     ΝX
                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY:
                                                                                                                                                                                                                                                                                                                                                  STREET:
                                                                                                                                                                                                                                                                                                                                                                                   STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
APPLICANT: Largman, Corey
APPLICANT: Largman, Corey
APPLICANT: Largman, Corey
APPLICANT: Largman, Corey
APPLICANT: Aumphries, R. Keith
APPLICANT: Sauvageau, Guy
TITLE OF INVENTION: HOX-INDUCED ENHANCEMENT OF IN VIVO
TITLE OF INVENTION: AND IN VITRO PROLIFERATIVE CAPACITY AND GENE THERAPEUTIC METHC
NUMBER OF SEQUENCES: 1
CORRESPONDENCE ADDRESS:
ADDRESSE: Fish & Richardson.
                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                            1198 CTIGTCCTAGCTGTTGCCTTGTCCTGGCTGCGGGAGAAGTTGCAATTGGG 1146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
                                                                                                                                                                                                                                                                                                                                                                                     27 cttgtactagctcttgctgtggctctcgcagtgggggaccagtccaacttggg 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 2018;
                                                                                                                                                                                                                                                                                                      Length 2296;
                                                                                                                                                                                                                                                                                                                                              18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 2;
                                                                                                                                                                                                                                                                                                      DB 2;
                                                                                                                                                                                                                                                                                                                                              0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. 16;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
NAME: Valta Gregg
REGISTRATION NUMBER: 35,127
REFERENCE/DOCKET NUMBER: 06510/039001
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 322-5070
TELEPHONE: (415) 854-0075
INFORMATION FOR SEQ ID NO: 1:
                                                                                                                                                                                                                                                                                                      Score 24.2; 1
Pred. No. 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE: Fish & Richardson.
STREET: 2200 Sand Hill Road, Suite 100
CITY: Menlo Park
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 23.8;
                  2589-0061-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: ASCIII
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/557,973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 1, Application US/08557973
Patent No. 5837507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IBM PC compatible
REGISTRATION NUMBER: 24,618
                REFERENCE/DOCKET NUMBER: 25
TELECOMMUNICATION INFORMATION:
TELEPHONE: (703) 413-3000
TELEFAX: (703) 413-220
INFORMATION FOR SEQ ID NO: 2:
                                                                                                                                                                                                  ; TOPOLOGY: linear
; MOLECULE TYPE: DNA (genomic)
US-08-899-336-2
                                                                                                                                                                                                                                                                                                    ch 30.2%;
1 Similarity 66.0%;
35; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                  SEQUENCE CHARACTERISTICS:
LENGTH: 2296 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE CHARACTERISTICS:
LENGTH: 2018 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 29.8
Best Local Similarity 62.7
Matches 37; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                            nucleic acid
                                                                                                                                                                  STRANDEDNESS: dow
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
Matches 35; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 13
US-08-557-973-1/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-557-973-1
                                                                                                                                                                                                                                                                                                                                                                                                                         q
                                                                                                                                                                                                                                                                                                                                                                                     ò
```

ö

us-09-426-776-11.rni

```
COMPUTER READABLE FORM:
MEDIUW TYPE: FLOPPY disk
COMPUTER: FLOPPY disk
COMPUTER: IBM PC COMPAtible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/44,818
FILING DATE:
CLASSIFICATION NUMBER: US/08/403,590
FILING DATE: 14 MAR-1995
ATTORNEY/AGENT INFORMATION:
PILING DATE: 14 MAR-1995
ATTORNEY/AGENT INFORMATION:
REGISTRATION NUMBER: 33,895
REFERENCE/COCKET NUMBER: 010.002
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION INFORMATION 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; TOPOLOGY: linear; MOLECULE TYPE: CDNA; FRATUNE: ; NAME/KEY: CDS; LOCATION: 2..274 US-08-444-818-63
94608-2916
```

17 catgagggtgcttgtactagctcttgctgtggctctcgcagtggggaccagtccaactt 76 ; 0 Query Match 29.5%; Score 23.6; DB 4; Length 274; Best Local Similarity 61.3%; Pred. No. 12; Matches 38; Conservative 0; Mismatches 24; Indels (ò

77 99 78 | 1 | 188 GG 187 õ

g

Search completed: May 5, 2001, 22:04:58 Job time: 2397 sec

Human prostate can Human hypoxia regu Human Seladin-1 cD Arabidopsis thalia

beta lactogl

Sheep

Primer BspSSfor fo Mus musculus don-1 Mus musculus don-1 Oerskovia xanthine Oerskovia xanthine Derskovia xanthine

Zea mays DNA fragm Hybrid mini-vitell Hybrid mini-vitell Hybrid mini-vitell Hybrid mini-vitell Hybrid mini-vitell Human Ras signalli Human cAMP-GEFI all Human secreted pro Barley D-hordein g Murine INTERCEPT 2

Murine secreted pr Murine secreted pr Murine secreted pr Murine secreted pr

Murine secreted pr Murine secreted pr Murine secreted pr HOXB4 cDNA sequenc

34 cDNA sequenc heart malonyl liver malonyl

sednence:

ou:

Searched:

Database

Result

<u>8</u>

5 6 7 7 110 110 111

```
O. aureus vitellogenin secretory signal sequence coding sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Vtgss; vitellogenin; secretory signal sequence; gene expression; oestrogen receptor binding protein; systemic circulation; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
18..80
                                                                                                                 V17812
T89157
T89155
T89156
C46522
                                                                                                                                                                                                                                         1976
                                                                                                                                                                                                                                                                                                                                            0662
                                                                                                                                                                                                                                                                          1981
                                                                                                                                                                                                                                                                                                         000316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98US-0106426
99US-0426776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99WO-SG00108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (UYSI-) UNIV SINGAPORE NAT. (LAMI/) LAM T J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A28495 standard; DNA; 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ä
                                                                                  29
1607
                                                                                                                                                                                                                                                                                                                                                                                                                                                846
                                                                                                                   2467
                                                                                                                                                                                                                       1247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2000-365615/31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Oreochromis aureus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ding JL, Tan NS,
WO200026366-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           30-OCT-1998;
26-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29-AUG-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11-MAY-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sig_peptide
                                                                                                                                                                                                       A28495;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
A28495
                                 00000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Vtgss-CAT fusion p
Vtgss-CAT fusion p
Vtgss-CAT fusion p
Vtgss-CAFCES fusion
Vtgss-CAFCES fusion
Vtgss-CAFCES fusion
Vtgss-CAFCES fusion
Sheep beta-lactogl
Ovine beta-lactogl
Human beta-lactogl
Sheep beta-lactogl
                                                                                                                 5, 2001, 21:25:56; Search time 114.18 Seconds (without alignments) 409.025 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Description
                                                                                                                                                                                                                     1 attcacatccaccagccatg......gggaccagtccaacttgggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | SIDS6/gcgdata/geneseqn/NAL991_DAT: |
| SIDS6/gcgdata/geneseqn/NAL991_DAT: |
| SIDS6/gcgdata/geneseqn/geneseqn/NAL993_DAT: |
| SIDS6/gcgdata/geneseqn/geneseqn/NAL994_DAT: |
| SIDS6/gcgdata/geneseqn/geneseqn/NAL995_DAT: |
| SIDS6/gcgdata/geneseqn/geneseqn/NAL995_DAT: |
| SIDS6/gcgdata/geneseqn/geneseqn/NAL996_DAT: |
| SIDS6/gcgdata/geneseqn/geneseqn/NAL999_DAT: |
| SIDS6/gcgdata/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn/geneseqn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N_Geneseq_0401:*

| SIDS6/gcgdata/geneseq/geneseqn/NA1980.DAT:*
| SIDS6/gcgdata/geneseq/geneseqn/NA1981.DAT:*
| SIDS6/gcgdata/geneseq/geneseqn/NA1981.DAT:*
| SIDS6/gcgdata/geneseq/geneseqn/NA1982.DAT:*
| SIDS6/gcgdata/geneseq/geneseqn/NA1984.DAT:*
| SIDS6/gcgdata/geneseq/geneseqn/NA1984.DAT:*
| SIDS6/gcgdata/geneseq/geneseqn/NA1985.DAT:*
| SIDS6/gcgdata/geneseq/geneseqn/NA1986.DAT:*
| SIDS6/gcgdata/geneseq/geneseqn/NA1988.DAT:*
| SIDS6/gcgdata/geneseq/geneseqn/NA1988.DAT:*
| SIDS6/gcgdata/geneseq/geneseqn/NA1988.DAT:*
| SIDS6/gcgdata/geneseq/geneseqn/NA1988.DAT:*
| SIDS6/gcgdata/geneseq/geneseqn/NA1988.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /SIDS6/gcgdata/geneseq/geneseqn/NA1989.DAT:*
/SIDS6/gcgdata/geneseq/geneseqn/NA1990.DAT:*
                 GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                       Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                         678276 seqs, 291890651 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                           Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                    OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A28499
A28500
A28502
A28496
A28507
C79853
T103855
T179725
Z87633
                                                                                                                                                                                                                                                        IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A28495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                            Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                    US-09-426-776-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query
Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10807
10807
222
824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /sidsé
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            315.0
315.0
315.0
315.0
315.0
315.0
315.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            65.4
28.8
28.4
27.6
27.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score
                                                                                                                                                                                      Title: '
Perfect score:
                                                                                                                                                                                                                                                        Scoring table:
```

30-OCT-1998;

```
The present sequence encodes a piscine, Oreochromis aureus, vitellogenin secretory sequence (Vtgss). This and variants that comprise conservative replacements that retain the biological activities of directing secretion of a fusion protein from a cell and cleavage of the secretory signal sequence from the fusion protein, are new. DNA encoding the Vtgss can be fused to either a reporter protein or a lippoblysaccharide-binding protein coding sequence. The isolated nucleic acid is useful for assaying for heterologous gene expression, detecting the presence of a compound that binds to an oestrogen receptor in a sample or producing a desired protein from a host cell. It can also be used in a method for obtaining systemic circulation of a desired protein in a transgenic or chimeric
                                                                                                                                                                                                                                                                                                                                                                                                 ;
                           Isolated nucleic acid for assaying for heterologous gene expression, detecting presence of compound that binds to estrogen receptor or producing desired protein from host cell comprises nucleotide sequence
                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                         Vtgss; vitellogenin; secretory signal sequence; gene expression; oestrogen receptor binding protein; systemic circulation; CAT; ss
                                                                                                                                                                                                                                                                                                                                                                                               ;
                                                                                                                                                                                                                                                                                                                                                                   Length 80;
                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       aa:Gln)
aa:Val)
aa:Trp)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Vtgss-CAT fusion protein (partial) coding sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /*tag= a
/transl_except= (pos:123..125, a:
/transl_except= (pos:132..134, as
/transl_except= (pos:141..143, aa
                                                                                                                                                                                                                                                                                                                                                                100.0%; Score 80; DB 21;
100.0%; Pred. No. 5.7e-18;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                    Sequence 80 BP; 14 A; 22 C; 24 G; 20 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note= "CAT N-terminal"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
51..152
                                                                       encoding secretory signal sequence
                                                                                                  Claim 2; Page 36; 73pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Chimeric - Oreochromis aureus
Chimeric - Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A28499 standard; DNA; 152 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99WO-SG00108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29-AUG-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /*tag= b
                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 100.
Matches 80; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             117. 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      partial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /*tag=
P-PSDB; Y92778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO200026366-A1
                                                                                                                                                                                                                                                                                           nost organism
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          29-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A28499;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
A28499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
```

```
vitellogenin secretory sequence (Vigeria), designated pastylegar was constructed. A28499 and A28722 comprise the 5' and 3'-ends of the constructed has and variants that comprise conservative replacements that retain the biological activities of directing secretion of a fusion protein from a cell and cleavage of the secretory signal sequence from the fusion protein, are new. DNA encoding the Vigers can be fused to either a reporter protein or a lipopolysaccharide-binding protein coding sequence. The isolated nucleic acid is useful for assaying for heterologous gene expression, detecting the presence of a compound that binds to an oestrogen receptor in a sample or producing a desired protein from a host cell. It can also be used in a method for obtaining systemic circulation of a desired protein in a transgenic or chimeric
                                                                                                                                                              Isolated nucleic acid for assaying for heterologous gene expression, detecting presence of compound that binds to estrogen receptor or producing desired protein from host cell comprises nucleotide sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 attcacatccaccagccatgagggtgcttgtactagctcttgctgtggctctcgcagtgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Vtgss; vitellogenin; secretory signal sequence; gene expression; oestrogen receptor binding protein; systemic circulation; CAT; ss.
                                                                                                                                                                                                                                                                        reporter CAT system that uses the piscine, Oreochromis aureus,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             aa:Gln)
aa:Val)
aa:Trp)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Vtgss-CAT fusion protein (partial) coding sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 21; 1
6.6e-18;
hes 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 152 BP; 38 A; 38 C; 39 G; 37 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transl_except= (pos:123..125, /transl_except= (pos:132..134, /transl_except= (pos:141..143, 51..113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%; Score 80; DB
100.0%; Pred. No. 6.6
Live 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                               encoding secretory signal sequence
                                                                                                                                                                                                                                         Example 2; Fig 5B; 73pp; English.

    Oreochromis aureus
    Synthetic.

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BP.
98US-0106426.
                                          (UYSI-) UNIV SINGAPORE NAT (LAMI/) LAM T J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A28500 standard; DNA; 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 100.
Best Local Similarity 100.
Matches 80; Conservative
                                                                                          Ä,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ..152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /*tag=
                                                                                                                   WPI; 2000-365615/31.
P-PSDB; Y92780.
                                                                                        Tan NS,
               26-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29-AUG-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chimeric
                                                                                       Ding JL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A28500;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Key
CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
```

/*tag=

ő

42...104 /*tag= b /note= "0. aureus Vtgss"

123..155 /*tag= c /note= "EGFP"

mat_peptide

WO200026366-A1

29-OCT-1999; 10-0CT-1998; 26-OCT-1999;

11-MAY-2000

98US-0106426. 99WO-SG00108

(UYSI-) UNIV SINGAPORE NAT. (LAMT/) LAM T J.

Ho B;

WPI; 2000-365615/31. Ding JL, Tan NS,

P-PSDB; Y92782.

Location/Qualifiers

ø

*tag=

sig_peptide

Key

- Oreochromis aureus

- Synthetic.

Chimeric

```
Isolated nucleic acid for assaying for heterologous gene expression, detecting presence of compound that binds to estrogen receptor or producing desired protein from host cell comprises nucleotide sequence encoding secretory signal sequence
                                                                                                                                                                                                                                        A reporter CAT system that uses the piscine, Oreochromis aureus,
                      /note= "CAT N-terminal"
                                                                                                                                                                                                                         Example 2; Fig 5D; 73pp; English
                                                                                      98US-0106426.
99US-0426776.
                                                                       99WO-SG00108
                                                                                                                UYSI-) UNIV SINGAPORE NAT
       Ç
               /partial
      /*tag=
                                                                                                                                                        WPI; 2000-365615/31.
                                                                                                                                        Tan NS,
                                                                                                                       LAM T J.
                                       WO200026366-A1.
                                                                                                                                                                P-PSDB; Y92780
                                                                       29-OCT-1999;
                                                                                      30-OCT-1998;
                                                                                               26-OCT-1999;
                                                      11-MAY-2000
mat_peptide
                                                                                                                                        Ding JL,
                                                                                                                       LAMT/)
```

vitaliogenin secretory sequence (Vigos), designated psp-VigoRT was constructed. A28500 and A2873 comprise the 5' and 3'-ends of the constructed insert. Vigos and variants that comprise conservative replacements that retain the biological activities of directing secretion of a fusion protein from a cell and cleavage of the secretory signal sequence from the fusion protein, are new. DNA encoding the Vigos can be fused to either a reporter protein or a lipopolysaccharide-binding protein coding sequence. The isolated nucleic acid is useful for assaying for heterologous gene expression, detecting the presence of a compound that binds to an oestrogen receptor in a sample or producing a desired protein from a host cell. It can also be used in a method for obtaining systemic circulation of a desired protein in a transgenic or chimeric Length 152; Sequence 152 BP; 39 A; 38 C; 39 G; 36 T; 0 other; Query Match

vitellogenin secretory sequence (Vtgss), designated pvtgEGFP was constructed. Vtgss and variants that comprise conservative replacements that retain the biological activities of directing secretion of a fusion protein from a cell and cleavage of the secretory signal sequence from the fusion protein, are new. DNA encoding the Vtgss can be fused to either a reporter protein or a lipopolysaccharide-binding protein coding sequence. The isolated nucleic acid is useful for assaying

A reporter GFP system that uses the piscine, Oreochromis aureus,

detecting presence of compound that binds to estrogen receptor or producing desired protein from host cell comprises nucleotide sequence

encoding secretory signal sequence Example 3; Fig 8B; 73pp; English.

solated nucleic acid for assaying for heterologous gene expression,

for heterologous gene expression, detecting the presence of a compound that binds to an oestrogen receptor in a sample or producing a desired protein from a host cell. It can also be used in a method for obtaining systemic circulation of a desired protein in a transgenic or chimeric

```
ö
                          Gaps
              ö
              Indels
100.0%; Score 80; DB 21;
100.0%; Pred. No. 6.6e-18;
ive 0; Mismatches 0;
                                                      Conservative
        Local Similarity
nes 80; Conserv
         Best Loc
Matches
                                          g
                                                        ç
                                                                    셤
                             ð
```

```
1 attcacatccaccagccatgagggtgcttgtactagctcttgctgtggctctcgcagtgg 60
                25 attcacatccaccagccatgagggtgcttgtactagctcttgctgtgtggtctcqcagtgg 84
                                                                                                                                                               A28496 standard; DNA; 204 BP.
                                                                                        gggaccagtccaacttgggg 104
                                                              61 gggaccagtccaacttgggg 80
                                                                                                                                                                                               A28496;
                                                                                                                                     RESULT
A28496
                                                                                                                                                                     X X X A
                                 g
                                                               δŽ
```

Vtgss; vitellogenin; secretory signal sequence; gene expression; oestrogen receptor binding protein; systemic circulation; EGFP; ss.

Vtgss-EGFP fusion protein (partial) coding sequence.

29-AUG-2000 (first entry)

A28502;

A28502 standard; DNA; 155 BP.

RESULT

ö

Gaps

; 0

Length 155; Indels

100.0%; Score 80; DB 21; 100.0%; Pred. No. 6.6e-18; iive 0; Mismatches 0;

80; Conservative

Query Match Best Local Similarity Matches 80; Conserva

Sequence 155 BP; 30 A; 45 C; 49 G; 31 T; 0 other;

nost organism.

Vtgss; vitellogenin; secretory signal sequence; gene expression; oestrogen receptor binding protein; systemic circulation; beta-lactamase; ss. Vtgss-beta-lactamase fusion protein (partial) coding sequence.

(first entry)

/*tag* b //note* "0. aureus vitellogenin secretory signal sequence"

115..204

/transl_except= (pos:199..201, aa:Tyr) /transl_except= (pos:202..204, aa:Phe) /partial

Location/Qualifiers

/*tag=

/*tag= c /note= "C. rotundicauda Factor C LPS-binding domain"

A28507 standard; DNA; 204

Location/Qualifiers

Ø

partial . . 204 /*tag=

sig_peptide

mat_peptide

Oreochromis aureus.
 Synthetic.

Chimeric Chimeric

/*tag= b /note= "Vtgss from O. aureus" 115..204 /*tag= c /note= "beta-lactamase mature protein"

99WO-SG00108 98US-0106426 99US-0426776

29-OCT-1999; 30-OCT-1998; 26-OCT-1999;

11-MAY-2000.

WO200026366-A1.

(UYSI-) UNIV SINGAPORE NAT. (LAMI/) LAM T J.

B;

Ю

WPI; 2000-365615/31. Ding JL, Tan NS,

P-PSDB; Y92783.

95. gggaccagtccaacttgggg 114

61 gggaccagtccaacttgggg

```
Vtgss; vitellogenin; secretory signal sequence; gene expression; oestrogen receptor binding protein; systemic circulation; factor C; ss.
                                                                                                                                                                                                                                                                                                                          Isolated nucleic acid for assaying for heterologous gene expression, detecting presence of compound that binds to estrogen receptor or producing desired protein from host cell comprises nucleotide sequence
                  Vtgss-CrFCES fusion protein coding sequence.

    Oreochromis aureus.
    Carcinoscorpius rotundicauda.

                                                                                                                                                                                                                                                                                                                                                  encoding secretory signal sequence
                                                                                                                                                                                                                                                                                                                                                                 Example 1; Fig 2A; 73pp; English.
                                                                                                                                                                                                                                                              SINGAPORE NAT.
29-AUG-2000 (first entry)
                                                                                                                                                                                                                                                                                                   WPI; 2000-365615/31.
                                                                                                                                                                                                                                                                                    Ding JL, Tan NS,
                                                                                                                                                                                                                                                                     LAM T J.
                                                                                                                                                                                                                                                                                                            P-PSDB; Y92779.
                                                                                                                                                                                       WO200026366-A1
                                                                                                                                                                                                                                                             UYSI-) UNIV
                                                                                                                                                                                                                       29-OCT-1999;
                                                                                                                                                                                                                                      30-OCT-1998;
26-OCT-1999;
                                                                                                                                 sig_peptide
                                                                                                                                                       mat_peptide
                                                                                                                                                                                                       11-MAY-2000
                                                        Chimeric
                                                                                                                                                                                                                                                                     LAMT/
```

H

99WO-SG00108 98US-0106426 99US-0426776

```
The piscine, Oreochromis aureus, vitellogenin secretory sequence (Vtgss) was fused upstream to the EcoRI-SalI cDNA fragment encoding the lipopolysaccharide-binding domain of Carcinoscorpius rotundicauda Factor C CrFCES for expression and secretion of recombinant ES protein from Drosophila cells. Vtgss and variants that comprise conservative replacements that retain the biological activities of directing secretion of a fusion protein from a cell and cleavage of the secretory signal sequence from the fusion protein, are new. DNA encoding the Vtgss can be fused to either a reporter protein or a lipopolysaccharide-binding protein coding sequence. The isolated nucleic acid is useful for assaying for heterologous gene expression, detecting the presence of a compound
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          that binds to an oestrogen receptor in a sample or producing a desired protein from a host cell. It can also be used in a method for obtaining systemic circulation of a desired protein in a transgenic or chimeric
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 204 BP; 48 A; 45 C; 58 G; 53 T; 0 other;
```

```
vitellogenin secretory sequence (Vtgss), designated pBADVtgblactKana was constructed. Vtgss and variants that comprise conservative replacements that retain the biological activities of directing secretion of a fusion protein from a cell and cleavage of the secretory signal sequence from the fusion protein, are new DNA encoding the Vtgss can be fused to either a reporter protein or a lipopolysaccharide-binding protein coding sequence. The isolated nucleic acid is useful for assaying for heterologous gene expression, detecting the presence of a compound that binds to an oestrogen receptor in a sample or producing a desired protein from a host cell. It can also be used in a method for obtaining systemic circulation of a desired protein in a transgenic or chimeric
Isolated nucleic acid for assaying for heterologous gene expression, detecting presence of compound that binds to estrogen receptor or producing desired protein from host cell comprises nucleotide sequence
                                                                                                                                                                                                                                                                                                                                                                                            A reporter beta-lactamase system that uses the Oreochromis aureus
                                                                                                                                                                               encoding secretory signal seguence
                                                                                                                                                                                                                                                                                Example 6; Fig 14A; 73pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ch 100.0%; Score 80; DB 21; Length 204; I Similarity 100.0%; Pred. No. 7e-18; 80; Conservative 0; Mismatches 0; Indels
```

Sequence 204 BP; 49 A; 42 C; 60 G; 53 T; 0 other;

host organism.

35

ò

Query Match Best Local Similarity

Matches

```
ö
                                                                                                                                                                                                                                                  Human; secreted protein; cytostatic; antiarthritic; antiasthmatic; immunosuppressive; antiarteriosclerotic; antinflammatory; nootropic; neuroprotective; antidiabetic; tranquiliser; vulnerary; antibacterial; antipsoriatic; antiarrhythmic; antinhumatic; cardiant; anti-HIV; autolumune disorder; allergic condition; cardiovascular disorder; cancer; neurological disease; tissue repair; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Novel 49 human secreted proteins useful for diagnosis, prevention and treatment of disorders including neurological, cell proliferative, cardiovascular, and autoimmune/inflammatory disorders and microbial
                                        Gaps
                       .
0
Score 65.4; DB 21; Length 204;
Pred. No. 5.2e-13;
); Mismatches 1; Indels 0;
                      Indels
                                                                                                                                                                                                                              Human secreted protein encoding cDNA for gene 5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim la; Page 338-339; 405pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Komatsoulis
                     ö
                                                                                                                                                              C79853 standard; cDNA; 573 BP.
 81.8%;
98.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            (HUMA-) HUMAN GENOME SCI INC
                                                                                                                                                                                                                                                                                                                                                                                                                 99US-0124142.
                                                                                                                                                                                                                                                                                                                                                                                                                           99US-0138597.
                                                                                                                                                                                                                                                                                                                                                                                            09-MAR-2000; 2000WO-US06057
                                                                                                                                                                                                         09-FEB-2001 (first entry)
                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ruben SM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 2000-638176/61.
          Best Local Similarity
Matches 66; Conserv
                                                                                                         108 cttgggg 114
                                                                                   74 cttgggg 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P-PSDB; B44834.
                                                                                                                                                                                                                                                                                                                                                 WO200055176-A2.
                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                 12-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                            11-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                       03-DEC-1999;
                                                                                                                                                                                                                                                                                                                                                                       21-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rosen CA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Infections
 Query Match
                                                                                                                                                                                   C79853;
                                                                                                                                        RESULT
C79853
                                                                                                                                                                                   ð
                                                              g
                                                                                   ò
                                                                                                      g
```

amino acid sequence at least 95 dentical to a polypeptide sequence of sequence at least 95 dentical to a polypeptide sequence of sequence at least 95 dentical to a polypeptide sequences of sequences included in American Type Culture Collection (ArcC) deposit number collection and the specification. The products of the invention have cytostatic, antiarthritic, antiasthmatic, immunosuppressive, nootropic; antiarterlosclerotic, antiasthmatic, immunosuppressive, nootropic; tranquiliser, vulnerary, antibacterial, antipsoriatic, antiarrhythmic, antiartheumatic, cardiant and anti-HIV activity. (I) or a nucleic acid (II) encoding (I) is useful for preventing, treating or amedicating a medical condition and for diagnosing a pathological condition or susceptibility to the condition (I) is useful for identifying a binding partner which affects the activity of the polypeptide and for identifying an activity in a biological sample. (I), (II) or an antibody (IV) specific to (I) is also useful for treating or preventing a disease, disorder or condition

This invention describes a novel isolated polypeptide (I) comprising

```
disorders when disorders such as autoimmune diseases, blood protein disorders, anemia, allergic reactions and conditions such as asthma, organ rejection or graft-versus-host disease, inflammation, hyper proliferative disorders, cardiovascular disorders such as asthma, corgan rejection or graft-versus-host diseases, inflammation, hyper proliferative disorders, cardiovascular disorders such as arterioarterial fistula, arrhythmias, arteriosclerosis, coronary thrombosis, organ regeneration, cancer, neovascular glaucoma, diabetic retinopathy, rheumatoid arthritis, psoriasis, diseases associated with increased apoptosis that include acquired immunodeficiency syndrome (AIDS), neurological diseases such as Parkinson's disease, viral, bacterial, fungal or parasitic diseases. They are also used to repair, replace or protect tissue damage by congenital defects, to treat trauma, in surgery, including cosmetic plastic surgery, to treat fibrosis, reperfusion injury or systemic cytokine damage, to stimulate chondrocyte growth, to prevent skin ading due to sunburn, to change a mammal's mental state or physical state by influencing biorhythms, cardiac rhythms, depression, memory, or antagonist are useful as food additives or preservatives to increase
associated with aberrant expression of (I). Diseases treated or diagnosed
                                                                                                                                                                                                                                                                                                                                                                                             or decrease storage capabilities, fat content, lipid, protein, carbohydrate, vitamin, mineral or other nutritional components. (I) is useful in for screening therapeutic compounds. (II) is useful in forensic biology for detecting DNA sequences and as diagnostic probes for detecting the presence of specific mRNA in a particular cell type.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 attcacatccaccagccatgagggtgcttgtactagctcttgctgtggctctcgcagtgg 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sheep beta-lactoglobulin; signal peptide; promoter; fusion protein; human fibrinogen A-alpha chain; B-beta chain; gamma chain; transgenic animal milk; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Production of fibrinogen in transgenic mammals - by introducing DNA segments into the germ line of a non-human mammal and collecting
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 21; Length 573;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 573 BP; 139 A; 135 C; 166 G; 133 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Dalrymple MA, Foster DC, Garner I, Prunkard DE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Mismatches 32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    36.0%; Score 28.8; 60.0%; Pred. No. 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sheep beta-lactoglobulin coding sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          T03855 standard; DNA; 10807 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             406 ggaatccgaccgtgttgggg 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 gggaccagtccaacttgggg 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  95WO-US02648.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (PHAR-) PHARM PROTEINS LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (ZYMO ) ZYMOGENETICS INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            W09523868-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-MAR-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  26-OCT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         08-SEP-1995.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ovis aries.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  T03855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
```

ö

```
04-NOV-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Key
primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EP771874-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             23-DEC-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                07-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    T60633;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 r60633
                                                                                                                                                                                                                                                                                                                                                                                                                          qq
    δ
                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                   δλ
                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                    4249 cctgcagccatgaagtgcctcctgcttgccctgggcctggccctcgcctgtggcgtccag 4308
                                                                                                                                                                                                                                                                                                                                 Gaps
                                                   contains a unique of region of the
                                                                                                                                                                                                                                                                                                                                                          9 ccaccagccatgagggtgcttgtactagctcttgctgtgggtctctcgcagtggggggccag 68
                                                 This sequence encodes sheep beta-lactoglobulin and contains a unique ECORV site at nucleotide 4445 in the 5' untranslated region of the gene. This site allows insertion of additional DNA sequences under the control of the beta-lactoglobulin promoter 3' to the transcription initiation site. The promoter and signal peptide may be used for mamma tissue-specific gene expression and secretion of human fibrinogen A-chain (see T03853), B-beta chain (T03854) in non-human transgenic animals. A region of at least the proximal 406 bp of 5' flanking sequences (nucleotides
                                                                                                                                                                                                                         beta-lactoglobulin sequences providing a putative tissue-specific initiation environment to enhance expression.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Protein C; transgenic animal; sheep; rabbit; cattle; goat; milk;
blood clotting; anticoagulant; beta-lactoglobulin; promoter; ss.
                                                                                                                                                                  3844-4257) is generally used, although larger sequences such as nucleotides 1-4257 are preferred. Furthermore, the region surrounding the initiation ATG of one or more of the human fibrinogen sequences may be replaced with the corresponding
                                                                                                                                                                                                                                                                                                                                 ;
0
                                                                                                                                                                                                                                                                                                      Length 10807;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Production of protein C in transgenic animal - useful for high
                                                                                                                                                                                                                                                               Sequence 10807 BP; 2215 A; 3065 C; 2985 G; 2542 T; 0 other;
                                                                                                                                                                                                                                                                                                                                26; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Prunkard DE;
                                                                                                                                                                                                                                                                                                       DB 16;
                                                                                                                                                                                                                                                                                                    Score 28.4; DB Fred. No. 2.6; 0; Mismatches
                         Disclosure; Page 69-77; 99pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Garner I,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
1.4257
/*tag= a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     T79725 standard; DNA; 10807 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ovine beta-lactoglobulin gene.
                                                                                                                                                                                                                                                                                                      Query Match 35.5%;
Best Local Similarity 62.9%;
Matches 44; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Cottingham I, Foster L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   96WO-US18866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          960S-0019692
950S-0565074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11-DEC-1997 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (PPLT-) PPL THERAPEUTICS. (ZYMO) ZYMOGENETICS INC.
milk from female progeny.
                                                                                                                                                                                                                                                                                                                                                                                                                                      4309 gccatcatcg 4318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 1997-310599/28.
                                                                                                                                                                                                                                                                                                                                                                                                              69 tccaacttgg 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO9720043-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 26-NOV-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13-JUN-1996;
30-NOV-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       05-JUN-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ovis aries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               T79725;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Key
5'UTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
T79725
                                                                                                                                                                                                                                                                                                                                                                                    음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                              ò
```

```
4249 cctgcagccatgaagtgcctcctgcttgccctgggcctggcctcgcctgtggcgtccag 4308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9 ccaccagccatgagggtgcttgtactagctcttgctgtggctctcgcagtgggggaccag 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human serum albumin; beta-lactoglobulin; hybrid; construct;
transgenic mammal; mammary gland; exogenous DNA; BLG; HSA; milk; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Human beta-lactoglobulin 5' fragment used to construct hybrid genes
                                                                                                                                                                                                                                                                                                       propertide, operably linked to DNA encoding two-chain cleavage site-modified protein C (see W25085-86), the 2 DNA sequences being linked to elements required for protein C expression in a mammary gland of a most female animal, such as beta-lactoglobulin gene promoter; and (b) using the DNA construct to breed a transgenic animal (esp. sheep, rabbit, cattle, goat) that produces protein C in its milk, at least 90% of the protein C being in the two-chain
                                                                                                                     This DNA sequence comprises the ovine beta-lactoglobulin gene including the promoter region. A DNA segment encompassing the 5' flanking promoter region can be utilised in novel constructs for the expression of human protein C in the milk of a transgenic animal. A claimed method involves: (a) providing a DNA construct comprising DNA encoding a secretion signal and a protein C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 10807;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 10807 BP; 2214 A; 3066 C; 2985 G; 2542 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
quantity protein C production with therapeutic value
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 28.4; DB 18;
Pred. No. 2.6;
0; Mismatches 26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note= "Start of intron 1"
                                                          Disclosure; Page 66-74; 99pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement (145..194)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers complement (12..46)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /*tag= a
/label= Oligo_#1
77..212
/*tag= b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /label= Oligo_#2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             *tag= d
label= Oligo_#3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 T60633 standard; DNA; 222 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 35.5%;
Best Local Similarity 62.9%;
Matches 44; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /number= 1
113..163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       213..222
/*tag= e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /number=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       *tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     *tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4309 gccatcatcg 4318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    69 tccaacttgg 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
```

96EP-0117613.

; 0

```
RESULT
                                                                                                                                                                                                                                                                                                                                                                                    268328
                                                                                                                                                                                                                                                                                                                              οy
                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                     ö
                                                                                                                            The present sequence represents a fragment of beta-lactoglobulin (BLG) used in the construction of hybrid genes. The hybrid construct comprises BLG 5'-flanking sequences and BLG intragenic sequences in conjunction with a desired cDNA or minigene or gene for targetting expression of the encoding DNA. The construct is used for producing transgenic mammals that secrete human serum albumin (HSA) in their milk. By using BLG, the
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Transgenic bovine; transgene; milk; serum protein; industrial enzyme; infant formulation; lactoferrin; intestinal tract infection; lysozyme; lion absorption; albumin; antibacterial; iron sequestration; betalG; beta-lactoglobulin; sheep; ds.
                                                                                                                                                                                                                                                                     Gaps
                                                                             Beta-lactoglobulin hybrid DNA constructs – for producing transgenic mammals expressing exogenous DNA in mammary glands
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lee SH;
                                                                                                                                                                                    expression of HSA DNA is targeted to cells in the mammary gland.
                                                                                                                                                                                                                                                    ;
0
                                                                                                                                                                                                                                 Length 222;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Krimpenfort PJA,
                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                Score 27.6; DB 18;
Pred. No. 2.1;
0; Mismatches 24;
                                                                                                                                                                                                     Sequence 222 BP; 37 A; 79 C; 66 G; 40 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                               Sheep beta-lactoglobulin (betaLG) gene fragment.
                                             Shani M;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Heyneker HL, Platenburg G,
                                             Hurwitz DR, Nathan M,
                                                                                                                                                                                                                                                   ;
                                                                                                            Example 1; Fig 1; 16pp; English.
                                                                                                                                                                                                                                                                                                                                                                        287633 standard; DNA; 824 BP.
                                                                                                                                                                                                                                34.5%;
ilarity 63.6%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    95US-0464167.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      93US-0154019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              89US-0444745.
90US-0619131.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 92US-0898956
93US-0077788
         95IL-0115873
                                                                                                                                                                                                                                                                                                                                                                                                             04-MAY-2000 (first entry)
                           (ISRA ) ISRAEL MIN AGRIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Deboer HA, Heyneker HI
Pieper F, Strijker R;
                                                                                                                                                                                                                       Query Match
Best Local Similarity
Laber 42; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (PHAR-) PHARMING BV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 2000-146563/13.
                                                              WPI; 1997-247416/23
                                                                                                                                                                                                                                                                                                                            172 tcatcg 177
                                                                                                                                                                                                                                                                                                          73 acttgg 78
         03-NOV-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    05-JUN-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US6013857-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16-NOV-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-DEC-1989,
27-NOV-1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15-JUN-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11-JAN-2000
                                            Barash I,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ovis sp.
                                                                                                                                                                                                                                                                                                                                                                                            287633;
                                                                                                                                                                                                                                                                                                                                                        RESULT 11
                                                                                                                                                                                                                                                                                                                                                                 287633
                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                           8
```

```
The invention provides a transgenic bovine in which the somatic and germ cells contain a transgene comprising a regulatory sequence from a gene expressed in mammary glands, DNA encoding a signal sequence and DNA encoding a naturally occurring heterologous polypeptide. The transgenic bovine, or its descendants, produce milk containing the heterologous polypeptide. The transgenic bovines are used to express human milk and serum proteins or industrial enzymes, specifically for infant formulations that contain human lactoferrin for control of intestinal tract infections and to improve iron absorption, particularly when potentiated by human lysozyme. The polypeptide expressed in milk of the transgenic bovine requires little if any purification before human consumption and is expressed at significantly higher levels than in
regulator, for expressing proteins in the milk, particularly human lactoferrin for infant feeding formulations
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Heyneker HL, Platenburg G, Pieper F, Krimpenfort PJA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   transgenic mice or sheep. Large polypeptides that are difficult to express in other systems can also be expressed. The present sequence represents a sheep beta-lactoglobulin gene fragment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13 cagecatgagggtgettgtactagetettgetgtggetetegeagtgggggaceagteea 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 824 BP; 138 A; 278 C; 245 G; 163 T; 0 other;
         Transgenic cattle containing transgene controlled by
                                                                                                                          Example 20; Fig 24; 92pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lactoferrin; mammary; milk; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    93US-0154019.
89US-0444745.
90US-0619131.
.92US-0898956.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sheep beta lactoglobulin DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C68328 standard; DNA; 824 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            95US-0476798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        93US-0077788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 34.5
Best Local Similarity 63.6
Matches 42; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 2001-040323/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (PHAR-) PHARMING BV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Strijker R, Heynek
Lee SH, Deboer HA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     814 tcatcg 819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          73 acttgg 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            37-JUN-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JS6140552-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     31-OCT-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16-NOV-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15-JUN-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 27 -NOV - 1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-DEC-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .5-JUN-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ovis aries.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C68328;
```

Claim 1; Page 943; 2338pp; English

```
New transgenic bovine whose mammary gland cells contain DNA encoding a signal sequence, and a polypeptide of interest and an expression regulatory sequence, for producing polypeptides in bovine milk -
                                                                                                                                                              invention relates to a transgenic or chimeric bovine whose
                                                                                                                                                                                  mammary gland cells contain a construct encoding a signal sequence, a polypeptide of interest and a regulatory sequence that promotes expression of the DNA sequence. The transgenic or chimeric bovine is
                                                                                                                                                                                                                                                                useful for producing recombinant polypeptides in milk of female transgenic mammals. The recombinant polypeptide may be used in food formulations, particularly in infant formula having either nutritional or beneficial value. An infant formula containing human lactoferrin from the transgenic bovine milk provides bacteriostatic effect, which aids in controlling diarrhoea in newborn. Recombinant polypeptides may also be used to supplement common diet formulations.
                                                                                                         English
                                                                                                         Disclosure; Fig 24; 88pp;
                                                                                                                                                                 The present
```

Sequence 824 BP; 138 A; 278 C; 245 G; 163 T; 0 other;

```
ö
                                         Gaps
                      ö
 DB 22; Length 824;
                     24; Indels
Query Match 34.5%; Score 27.6; D
Best Local Similarity 63.6%; Pred. No. 2.8;
Matches 42; Conservative 0; Mismatches
                                                                                                       814 tcatcg 819
                                                                                    73 acttgg 78
                                          å
                                                               g
                                                                                    ò
                                                                                                       a
```

Human; prostate cancer; prostate cancer antigen; detection; diagnosis; Human prostate cancer antigen nucleotide sequence SEQ ID NO:470. 15/c F16035 standard; cDNA; 879 BP. (first entry) 13-MAR-2001 F16035; RESULT 13 F16035,

neuroprotective; cytostatic; cardioactive; immunomodulatory; muscular; vulnerary; gastrointestinal; nephrotropic; antiinfective; gynaecological; antibacterial; gene therapy; neural; immune; reproductive; renal; gastrointestinal; pulmonary; cardiovascular; proliferative disorder; wound; infectious disease; ss.

Homo sapiens.

WO200055174-A1.

21-SEP-2000.

08-MAR-2000; 2000WO-US05988 99US-0124270 12-MAR-1999; (HUMA-) HUMAN GENOME SCI INC (ROSE/) ROSEN C A.

Rosen CA, Ruben SM;

WPI; 2000-587513/55

P-PSDB; B56832.

Prostate cancer associated gene sequences, referred to as prostate cancer antigens, useful for treatment, prevention, and diagnosis of disorders such as prostate cancer -

```
called prostate cancer antigens, given in B6563 to B5730. The prostate cancer antigens, given in B6563 to B5730. The prostate cancer antigens can have neuroprotective, cytostatic, cardioactive, immunomodulatory, muscular, vulnerary, gastrointestinal, neptrotropic, antiinfective, gynaecological and antibacterial activities, and can be used in gene therapy. The prostate cancer antigen polynucleotides may be chromosome markers, and for numerous other diagnostic or research purposes. The prostate cancer antigens may be used to treat disorders such as neural, immune, muscular, reproductive, gastrointestinal, pulmonary, cardiovascular, real, and proliferative disorders, wounds, and infectious diseases. F16506 to F16514 to B57303 represent sequences
                                                       to F16505 encode the human prostate cancer associated proteins
                                                                                                                                                                                                                                                                                                                                                                                                 used in the exemplification of the present invention.
                                                       F15566
```

Sequence 879 BP; 172 A; 329 C; 257 G; 116 T; 5 other;

Gaps ö Length 879; Indels Score 27.4; DB 21; Pred. No. 3.3; 0; Mismatches 16; 34.2%; Query Match 34.2° Best Local Similarity 69.8° Matches 37; Conservative

ö

ò g

Z51205 standard; cDNA; 4094 BP (first entry) 06-JUN-2000 Z51205;

RESULT 14

Human hypoxia regulatory protein 2-2-83 encoding cDNA.

Hypoxia; 2-2-83; anti-hypoxic; vasotropic; neuroprotective; ischaemia; antiapoptotic; angiogenic; tumourigenic; diagnosis; treatment; apoptosis; angiogenesis; neurite outgrowth; tumourigenesis; gene therapy; human; ss.

sapiens. Homo

Location/Qualifiers 37. 1587 /*tag= a /product= "2-2-83 protein" DOE NOT THE STATE OF STATE OF

WO200012139-A1

09-MAR-2000

99WO-US20393 27-AUG-1999;

98US-0098158 99US-0132684 05-MAY-1999; 27-AUG-1998;

QUAR-) QUARK BIOTECH INC. (KOHN/) KOHN K.

Skaliter R; Einat P, Feinstein E,

WPI; 2000-237786/20.

P-PSDB; Y70123.

Polynucleotide sequence comprising a hypoxia response gene, useful for treating and diagnosing hypoxia and ischemia

Claim 7; Fig 2; 80pp; English.

The present seguence is the human hypoxia response regulatory cDNA,

```
Query Match
```

Length 4248;

DB 21;

33.5%; Score 26.8;

```
which encodes 2-2-83 protein. The expression of this gene is modulated by hypoxic conditions. 2-2-83 protein has anti-hypoxic, vasotropic, neuroprotective, antiapoptotic, anglogenic and tumourigenic activity. It can be used for diagnosing and treating hypoxia and ischaemia and regulating apoptosis, anglogenesis, neurite outgrowth and tumourigenesis. 2-2-83 nucleotide sequence may be used in gene therapy and is a useful source of diagnostic probes to identify hypoxia
                                                                                                                                                                                                associated pathologies
  8888888888
```

Sequence 4094 BP; 890 A; 1128 C; 1113 G; 963 T; 0 other;

```
ó;
                              Gaps
                             ó;
  Length 4094;
                             Indels
Score 26.8; DB 21;
Pred. No. 7.1;
0; Mismatches 17;
Query Match 33.5%;
Best Local Similarity 68.5%;
Matches 37; Conservative
```

113 tgctcatccaccagcgctgggtgttcgtgtgcctctcctcctgcggctctgc 166 2 ttcacatccaccagccatgagggtgcttgtactagctcttgctgtgggctctcgc 55 ð 셤

```
A28450 standard; cDNA; 4248 BP
           29-AUG-2000 (first entry)
               Human Seladin-1 cDNA
       A28450;
RESULT 15
```

Seladin-1; Alzheimer's disease; Parkinson's disease; Neuroprotective; nootropic; gene therapy; ss Homo sapiens

Location/Qualifiers 100..1650 /*tag= a Key

EP1002862-A1

98EP-0121478 12-NOV-1998; 24-MAY-2000

98EP-0121478 12-NOV-1998;

(NITS/) NITSCH R M.

WPI; 2000-341710/30 P-PSDB; Y92730. Novel isolated Seladin-1 polypeptide useful in the diagnosis, prognosis and treatment of neurological diseases, e.g. Alzheimer's disease and Amyotrophic lateralsclerosis

Claim 1; Fig 14; 47pp; English.

The present cDNA encodes seladin-1. The cDNA was isolated by differential display PCR using total RNA from post-mortem brain tissues from Alzheimer's disease patients and control subjects. The seladin-1 cDNA or protein reduces or prevents the degeneration of neurons and slows brain amyloid formation. They may be used to diagnose or prognose a neurological disease or to evaluate a treatment for a neurological disease (claimed). Neurological diseases treatable by seladin-1 cDNA or protein include Alzheimer's disease, Parkinson's disease, Huntingdon's disease, Amyotrophic lateralsclerosis and Pick's disease.

994 T; Sequence 4248 BP; 920 A; 1171 C; 1163 G;

```
Gaps
            ö
            17; Indels
 Pred. No. 7.2;
0; Mismatches
68.5%;
Best Local Similarity 68.5
Matches 37; Conservative
```

ö

2 ttcacatccaccagccatgagggtgcttgtactagctcttgctgtgggctctcgc 55 셤 ð

5, 2001, 22:07:02 Search completed: May Job time: 2466 sec

Compugen Ltd GenCore version 4.5 Copyright (c) 1993 - 2000 Comp

OM protein - protein search, using sw model

3, 2001, 15:51:41; Search time 8.3 Seconds (without alignments) 86.671 Million cell updates/sec Мау Run on:

US-09-426-776-10 96 Title: Perfect score: Sequence:

1 MRVLVLALAVALAVGDGSNLG 21

93435 seqs, 34255486 residues Searched:

BLOSUM62 Gapop 10.0 , Gapext 0.5

Scoring table:

Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0% Maximum Watch 100% Listing first 45 summaries

SwissProt_39:* Database :

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

		Description	P45779 vibrio chol	P31780 aeromonas h	P45778 aeromonas s	Q98893 fundulus he			8 capre			-		043520 homo sapien	-	P18959 manduca sex		0	-		P02756 capra hircu	P02757 ovis aries	P11839 ovis aries	P02666 bos taurus	Q9tsi0 bubalus bub	. P05814 homo sapien	P09116 oryctolagus	Q9tvd0 camelus dro	P43242 oryctolagus	Q51911 peptostrept	Q10773 mycobacteri	P35444 rattus norv	_	Q49379 mycoplasma	060312 homo sapien
SUMMARIES		QI	GSPD_VIBCH	GSPD_AERHY	GSPD_AERSA	VIT2_FUNHE	AT1K_HUMAN	ASM_HUMAN	CASB_CAPHI	APA1_BRARE	BGH3_HUMAN	BGH3_RABIT	AT1B_MOUSE	AT1C_HUMAN	YJBE_ECOLI	PBP_MANSE	APA1_SALSA	CYOB_HAEIN	YCHM_ECOLI	GSPD_ECOLI	LACB_CAPHI	LACB_SHEEP	CASB_SHEEP	CASB_BOVIN	CASB_BUBBU	CASB_HUMAN	CASB_RABIT	CASB_CAMDR	HO2_RABIT	PAB_PEPMA	MML6_MYCTU	COMP_RAT	MML1_MYCTU	ADP1_MYCGA	AT5C_HUMAN
		BB	-	-	-	П	-	Н	⊣.	-	7	-	-	-	-	٦	~	7	~1	-	-			-	-	-	-	-	-	Н	-	-	-	-	Н
		Length	674	678	678	1687	945	629	222	262	683	683	1148	1251	80	168	258	378	220	654	180	180	222	224	224	226	228	232	312	387	9	755	958	1122	1163
ď	Query		57.3	S	LO.		46.9	٠	٠	•	٠	٠	٠	44.8	44.3	43.8		•	43.8	43:8	42.7	42.7	42.7	42.7	42.7	42.7	42.7	42.7	42.7	٠	•	42.7	42.7	42.7	42.7
		Score		53		23	45	44	43	43	43	43	43	4	42.5	42	42	42	42	42	41	. 41	41	41	41	41	41	41	41	41	41	41	41	41	41
	Result	No.	1	7	m	4	S	œ	7	80	6	10	11	12	13	14	15	16	17	18	19	50	21	22	23	24	25	56	. 27	28	53	30		32	33

054827 mus musculu	P08445 synechococc	P02222 chironomus	P43036 pseudomonas	Q08537 bos taurus	P22692 homo sapien	P08187 escherichia	P06862 escherichia	P05167 hordeum vul	P37308 escherichia	P43676 escherichia	P38676 neurospora
AT5A_MOUSE	ATPL_SYNP6	GLB2_CHITH	PAL_PSEPU	UPK2_BOVIN	IBP4_HUMAN	PTNC_ECOLI	SERB_ECOLI	ALEU_HORVU	PITA_ECOLI	PITB_ECOLI	GUX1_NEUCR
-	Ä	-	-	-	-	-	-	Н	Н	Н	7
1508	81	160	166	185	258	366	322	362	499	499	516
42.7	42.2	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7
41	40.5	40	40	40	40	40	40	40	40	40	40
34	35	36	37	.38	38	40	41	42	43	44	4.5

ALIGNMENTS

RESULT 1 GENOUTH 1 G
--

Gaps

ö

Indels

5,

NA FFFF S

RESULT 2
GSPD_AERHY

QQ

õ

EXED.

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Buropean Bioinformatics Institute. There are no restrictions on its most by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -!- FUNCTION: INVOLVED IN A GENERAL SECRETION PATHWAY (GSP) FOR THE EXPORT OF PROTEINS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15-JUL-1998 (Rel. 36, Created)
15-JUL-1998 (Rel. 36, Last sequence update)
15-JUL-1998 (Rel. 36, Last sequence update)
15-JUL-1998 (Rel. 36, Last annotation update)
VITELLOGENIN II PRECURSOR (YTG II) [CONTAINS: LIPOVITELLIN 1 (LV1);
PHOSVITIN (PV); LIPOVITELLIN 2 (LV2); YP 69].
Fundulus heteroclitus (Killifish) (Mummichog).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL.
GENERAL SECRETION PATHWAY PROTEIN D.
CB4921C9BAB438E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Karlyshev A.V., Macintyre S.; "Cloning and study of the genetic organization of the exe gene
                                                                                                                                                                                                                                                                                                                                                                                            Aeromonas salmonicida.
Bacteria; Proteobacteria; gamma subdivision; Aeromonadaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -!- SUBCELLULAR LOCATION: OUTER MEMBRANE (PROBABLE).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 1; Length 678;
                                                                                                                                                                                                                                                                     01-NOV-1995 (Rel. 32, Created)
01-NOV-1995 (Rel. 32, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
GENERAL SECRETION PATHWAY PROTEIN D PRECURSOR.
                                                                                                                                                                                                                          678 AA
            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                55.2%; Score 53; DE 60.0%; Pred. No. 4; ive 3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cluster of Aeromonas salmonicida.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF00263; Bac_GSPproteins; 1. PRINTS; PR00811; BCTERIALGSPD. PROSITE; PS00875; T2SP_D; 1. Transport; Outer membrane; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN=NCMB 1102;
MEDLINE=95309729; PubMed=7789814;
            3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          72768 MW;
                                                                                :||| |: | :| ||| ||| 353 QVLVEAIIVEIADGDGLNLG 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         352 QVLVEAIIVEIADGDGLNLG 371
                                                            21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; X80505; CAA56668.1; -.
                                                         2 RVLVLALAVALAVGDGSNLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2 RVLVLALAVALAVGDGSNLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity 60.0
Matches 12; Conservative
            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR000016; -. InterPro; IPR001775; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gene 158:77-82(1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            678 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=645;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VIT2_FUNHE
Q98893;
            12;
                                                                                                                                                                                                                        GSPD_AERSA
P45778;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Aeromonas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VIT2_FUNHE
                                                                                                                                                                                                    GSPD_AERSA
          Matches
                                                                                                                                                                                                                                                                                                                                                                          EXED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                    đ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to_license@lsb-sib.ch).
                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "The Aeromonas hydrophila exeE gene, required both for protein secretion and normal outer membrane biogenesis, is a member of a general secretion pathway.":

MOI. Microbiol. 6:1351-1361(1992).

EXPORT OF PROTEINS.

EXPORT OF PROTEINS.
                                               POTENTIAL.

GENERAL SECRETION PATHWAY PROTEIN D.
V -> A (IN REF. 1).
R -> P (IN REF. 1).
; 3D778891A59E6223 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL SECRETION PATHWAY PROTEIN D. 43B33A28861B0238 CRC64;
                                                                                                                                                                                                                                                                        ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bacteria; Proteobacteria; gamma subdivision; Aeromonadaceae;
                                                                                                                                                                                                                57.3%; Score 55; DB 1; Length 674; 60.0%; Pred. No. 2.1; ative 3; Mismatches 5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -1- SUBCELLULAR LOCATION: OUTER MEMBRANE (PROBABLE).
-1- SIMILARITY: BELONGS TO THE EXED/OUTD/PULD/XPSD FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 1; Length 678;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (SEP-1994) to the EMBL/GenBank/DDBJ databases,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GSPD_AERHY STANDARD; PRT; 678 AA. P31780; 01-JUL-1993 (Rel. 26, Created) 01-NOV-1995 (Rel. 32, Last sequence update) 01-NOV-1995 (Rel. 32, Last annotation update) GENERAL SECRETION PATHWAY PROTEIN D PRECURSOR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    53;
No. 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam; PF00263; Bac_GSPproteins; 1.
PRINTS; PR00811; BCTERIALGSPD.
PROSITE; PS00875; T2SP_D; 1.
PROSITE; PS00875; T2SP_D; 1.
Transport; Outer membrane; Signal.
SIGNAL 1 24 POTEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-92349963; PubMed-1640836;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Transport; Outer membrane; Signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  678 G
72451 MW;
                                                                                                                                               674 AA; 73469 MW;
                                                                                                                                                                                                                                                                                                                                            . :||: || || || || || || 343 QVLIEALIVEMAEGDGINLG 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE OF 408-678 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; X66504; CAA47124.1; -. PIR; S22668.
InterPro; IPR000016; -. InterPro; IPR01775; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    55.2%;
60.0%;
                                                                                                                                                                                                                                                                                                                   2 RVLVLALAVALAVGDGSNLG 21
                                                                                                                                                                                                                   Query Match 77.3%
Best Local Similarity 60.0%
Matches 12; Conservative
                                                                        . .674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Jiang B., Howard S.P.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Aeromonas hydrophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         678 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                      25
89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WCBI_TaxID=644;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN-AH65;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Howard S.P.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN-AH65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
SEQUENCE
                                                                           CHAIN
                                                                                                                      CONFLICT
```

ö

Gaps

ö

Indels

SIGNAL

945 AA.

PRT;

STANDARD;

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its way non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Unpublished observations (FEB-2000).

-!- CATALYTIC ACTIVITY: ATP + H(2)0 = ADP + ORTHOPHOSPHATE.

-!- SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN.

-!- SUBLEALINGS TO THE CATION TRANSPORT ATPASES FAMILY (E1-E2 ATPASES). SUBFAMILY IV.

-!- CAUTION: REF.1 SEQUENCE DIFFERS AT SEVERAL POSITIONS FROM THAT SHOWN DUE TO DIFFERENCES IN THE PREDICTION OF SPLICE SITES.
                                                                                                                                                                                                                                                                                                                                                                                                                                     Lamerdin J.E., McCready P.M., Skowronski E., Adamson A.W.,
Burkhart-Schultz K., Gordon L., Kyle A., Ramirez M., Stilwagen S.,
Bhan H., Velasco N., Do L., Regala W., Terry A., Garnes J.,
Danganan L., Poundstone P., Christensen M., Georgescu A., Avila J.,
Liu S., Attix C., Andreise T., Trankheim M., Amico-Reller G.,
Coefield J., Duarte S., Lucas S., Bruce R., Thomas P., Quan G.,
Kronmiller B., Arellano A., Montgomerry M., Ow D., Nolan M., Trong S.,
Submitted (MAY-1998) to the EMBL/GenBank/DDBJ databases.
                                                                                                                  30-MAY-2000 (Rel. 39, Created)
30-MAY-2000 (Rel. 39, Last sequence update)
30-MAY-2000 (Rel. 39, Last annotation update)
POTENTIAL PHOSPHOLIPID-TRANSPORTING ATPASE IK (EC 3.6.1.-) (FRAGMENT).
                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
NCBL_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CONCEPTUAL TRANSLATION.
                                                                                                                                                                                                                                                                    Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         K.B.;
                                                             AT1K_HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Axelsen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DOMAIN
                           AT1K_HUMAN
                                                             SOLUTION OF THE PROPERTY OF TH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the Buropaen Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          entities requires a license agreement (See http://www.isb-sib.ch/announce/
or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                            ATESUE SPECIFICITY: PRODUCED BY THE LIVER, SECRETED INTO THE BLOOD AND THEN SEQUESTERED BY RECEPTOR MEDIATED ENDOCYTOSIS INTO GROWING COCYTES, WHERE IT IS GENERALLY CLEAVED, GIVING RISE TO THE RESPECTIVE YOLK COMPONENTS LIPOVITELLINS AND PHOSVITIN.
INDUCTION: SYMTHESIZED IN THE LIVER OF OVIPAROUS VERTEBRATES IN RESPONSE TO STEROID (ESTROGEN) INDUCTION. STEROID INDUCED EXPRESSION OF VTG II IS LOWER THAN THAT OF VTG I.

PTW. PHOSVITIN, AN EGG YOLK STORAGE PROTEIN, IS ONE OF THE MOST HIGHLY PHOSPHORYLATED (10%) PROTEINS IN NATURE (BY SIMILARITY).
                                                                                                                                                                       TISSUE-Liver;
Lafleur G.J. Jr., Byrne B.M., Haux C., Greenberg R.M., Wallace R.A.,
Lufleur G.J. Jr., Byrne B.M., Haux C., Greenberg R.M., Wallace R.A.,
Lufleur G.J. Jr., Byrne B.M., Haux C., Greenberg R.M., Wallace R.A.,
Lufler G.J. Jr., Byrne B.M., Hallogenins and vitelline envelope protein
precursors (choriogenins).;
Int. Symp. Reprod. Physiol. Fish 5:336-338(1995).
Int. Symp. Reprod. Physiol. Fish 5:336-338(1995).
SOURCES OF NUTRIENTS DURING EARLY DEVELOPMENT OF OVIPAROUS
   Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POTENTIAL)
                           Acanthomorpha; Acanthopterygii; Percomorpha; Atherinomorpha; Cyprinodontiformes; Fundulidae; Fundulus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 53; DB 1; Length 1687;
Pred. No. 8.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4965BB9DBFB4928F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Storage protein; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VITELLOGENIN II. LIPOVITELLIN 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LIPOVITELLIN 2.
                                                                                                                                                 SEQUENCE FROM N.A., AND SEQUENCE OF 16-35.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PHOSVITIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SER-RICH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF01347; Vitellogenin_N; 1.
Pfam; PF00094; vwd; 1.
Glycoprotein; Phosphorylation; St
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 186005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; U70826; AAB17152.1; -.
InterPro; IPR001747; -.
InterPro; IPR001846; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 55.2%;
75.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 55.2
Best Local Similarity 75.0
Matches 12; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1342
1361
1366
1390
                                                                                            NCBI_TaxID-8078;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Glycoprotein;
SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEOUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CHAIN
SOURCE STATE TO THE TEST TO TH
```

```
Hydrolase; Transmembrane; Phosphorylation; Magnesium; ATP-binding; Multigene family.
                                                                                                                                                                                                                                                                                                                                                                                              EXTRACELLULAR (POTENTIAL).
PHOSPHORYLATION (BY SIMILARITY).
MAGNESIUM (BY SIMILARITY).
MAGNESIUM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MW; 2A28483C2F58D702 CRC64;
                                                                                                                                                                        EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                             EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                       POTENTIAL.
EXTRACELLULAR (POTENTIAL)
                                                                                                                                        CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                              CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                       CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                          CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                             POTENTIAL.
                                                                                                                                                                                                                                                                                           POTENTIAL.
                                                                                                                                                                                                                                                          POTENTIAL.
                                                                                                                                                                                         POTENTIAL
EMBL; AC004755; AAC17601.1; ALT_SEQ.
InterPro; IPR001757; -
InterPro; IPR002048; -.
                                                    Pfam; PF00122; E1-E2_ATPase; 2.
PROSITE; PS00154; ATPASE_E1_E2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                107157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  945 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NON_TER
SEQUENCE
                                                                                                                                                                                                                                          DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                            DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                              DOMAIN
TRANSMEM
                                                                                                                                                          PRANSMEM
                                                                                                                                                                                                                                                                                                                             RANSMEM
                                                                                                                                                                                           RANSMEM
                                                                                                                                                                                                                              RANSMEM
                                                                                                                                                                                                                                                                                                                                                                                               DOMAIN
MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                 DOMAIN
```

0;

Gaps

ö

3; Indels

Pred. No. 8.2; 1; Mismatches.

1 MRVLVLALAVALAVGD 16

ð g

```
SEQUENCE FROM N.A.
MEDLINE-93183402; PubMed=1292508;
MEDLINE-93183402; PubMed=1292508;
MEVIZELLA D., Stoffell W.; acid sphingomyelinase of the mouse and the organization and complete nucleotide sequence of the gene.";
Biol. Chem. Hoppe-Seyler 373:1233-1238(1992).
                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Levran O., Desnick R.J., Schuchman E.H.; Miemann-Pick disease: a frequent missense mutation in the acid sphingomyelinase gene of Ashkenazi Jewish type A and B patients."; Proc. Natl. Acad. Sci. U.S.A. 88:3748-3752(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                             Schuchman E.H., Suchi M., Takahashi T., Sandhoff K., Desnick R.J., "Human acid sphingomyelinase. Isolation, nucleotide sequence and expression of the full-length and alternatively spliced cDNAs."; J. Biol. Chem. 266:8831-8339(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Levran O., Desnick R.J., Schuchman E.H., "Niemann-Pick type B disease. Identification of a single codon election in the acid sphingomyelinase gene and genotype/phenotype correlations in type A and B patients.";
J. Clin. Invest. 88:806-810(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                patient
                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-90060003; PubMed-2555181;
Ouintern L.E., Schuchman E.H., Levran O., Suchi M., Ferlinz K.,
Reinke H., Sandhoff K., Desnick R.J.;
"Isolation of CDNA clones encoding human acid sphingomyelinase:
occurrence of alternatively processed transcripts.";
                                      <u>.</u>
                                                                                                                                                                                                                     01-AUG-1990 (Rel. 15, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
01-CTT-2000 (Rel. 40, Last annotation update)
SPHINGONYELIN PHOSPHODIESTERASE PRECURSOR (EC 3.1.4.12) (ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              In a
   Length 945;
                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ferlinz K., Hurwitz R., Sandhoff K.; Molecular basis of acid sphingomyelinase deficiency
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE OF 128-629 FROM N.A., AND PARTIAL SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             with Niemann-Pick disease type A.";
Biochem. Biophys. Res. Commun. 179:1187-1191(1991).
                                   3,
                                                                                                                                                                                      629 AA.
                 63;
                                   5; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE-93004773; PubMed-1391960;
Levran O., Desnick R.J., Schuchman E.H.;
   Score 45;
                   Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE-91219449; PubMed-2023926;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE-92028849; PubMed-1718266;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE-91358737; PubMed-1885770;
                                                                                             691 KALIVALVKKYHQVVTLAIGDGAN 714
                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-91217097; PubMed-1840600;
                                                                   2 RVLVLAL-----AVALAVGDGSN 19
46.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBO J. 8:2469-2473(1989).
                                   Conservative
                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VARIANT NPD ARG-608 DEL
                                                                                                                                                                                                                                                                                                                            Homo saptens (Human).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VARIANT NPD PRO-302.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VARIANT NPD LEU-496.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VARIANT NPD SER-577
                                                                                                                                                                                                                                                                                          SPHINGOMYELINASE).
                   Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TISSUE-Fibroblast;
                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=9606
                                                                                                                                                                                                         P17405; P17406;
                                                                                                                                                                                                                                                                                                          SMPD1 OR ASM.
                                   10;
                                                                                                                                                                                       ASM_HUMAN
 Query Match
                                                                                                                                                      RESULT 6
ASM_HUMAN
                                 Matches
                                                                                                                                                                                       셤
                                                                    ð
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -!- FUNCTION: CONVERTS SPHINGOMYELIN TO CERAMIDE. ASM ALSO HAS PHOSPHOLIPASE C ACTIVITIES TOWARD 1,2-DIACYLGLYCEROLPHOSPHOCHOLINE AND 1,2-DIACYLGIYCEROLGHOSPHOGLYCEROL.
-!- CATALYTIC ACTIVITY: SPHINGOMYELIN + H(2)O = N-ACYLSPHINGOSINE +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Takahashi T., Suchi M., Desnick R.J., Takada G., Schuchman E.H.; "Identification and expression of five mutations in the human acid sphingomyelinase gene causing types A and B Niemann-Pick disease. Molecular evidence for genetic heterogeneity in the neuronopathic and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -i- SUBCELLULAR LOCATION: LYSOSOMAL.
-i- ALTERNATIVE PRODUCTS: 3 ISOFORMS; ASM-1 (SHOWN HERE)
(FREQUENCY 90%), ASM-2 (FREQUENCY 10%) AND ASM-3 (FREQUENCY <1%);
ARE PRODUCED BY ALTERNATIVE SPLICING. ONLY ASM-1 ENCODES A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sphinogomyelinase gene of Japanese patients with Niemann-Pick disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "A family with visceral course of Niemann-Pick disease, macular halo syndrome and low sphingomyelin degradation rate."; J. Inherit. Metab. Dis. 17:93-103(1994).
    "Identification and expression of a common missense mutation (1302P) in the acid sphingomyelinase gene of Ashkenazi Jewish type A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DISEASE: DEFICIENCY IN ASM IS THE CAUSE OF THE NIEMANN-PICK DISEASE (NPD). SPHINGOMYELIN AND OTHER METABOLICALLY RELATED LIFIDS ACCOMULATE IN THE LYSOSOMES. PATIENTS MY SHOW XANTHOMAS, PIGMENTATION, HEPATOSPLENDMEGALY, LYMPHADENOPATHY AND MENTAL. RETARDATION. THERE ARE TWO MAIN TYPES: TYPE A, IS A RAPIDLY. PROGRESSIVE AND FATAL NEURODEGENERATIVE DISEASE OF INFANCY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      đ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Two new mutations in the acid sphingomyelinase gene causing type Niemann-pick disease: N389T and R441X.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SURVIVE INTO ADULTHOOD. NPD OCCURS MORE FREQUENTLY AMONG INDIVIDUALS OF ASHKENAZI JEWISH ANCESTRY THAN IN THE GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MISCELLANEOUS: THERE ARE TWO TYPES OF SPHINGOMYELINASES: ASM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE-94328611; PubMed-8051942;
Sperl W., Bart G., Vanier M.T., Christomanou H., Baldissera I.,
Steichensdorf E., Paschke E.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE B, HAS LITTLE IF ANY NEUROLOGIC INVOLVEMENT AND MAY
                                                                                                                                                                                                                                                                                        Takahashi T., Desnick R.J., Takada G., Schuchman E.H.; "Identification of a missense mutation ($436R) in the acid sphingomyealinase gene from a Japanese patient with type B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ida H., Rennert O.M., Maekawa K., Eto Y.;
Identification of three novel mutations in the acid
'Identification and expression of a common missense
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VARIANTS NPD ARG-242; ILE-382 AND SER-383.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Biol. Chem. 267:12552-12558(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VARIANT NPD THR-389.
MEDLINE-96287387; Pubmed-8680412;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE~96263741; PubMed=8664904;
                                                                                                                                                                                                                                                     MEDLINE-93244834; PubMed-1301192;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE-92316934; PubMed=1618760;
                                                                                   Niemann-Pick disease patients.";
Blood 80:2081-2087(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CATALYTICALLY ACTIVE ENZYME.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (ACID), AND NSM (NEUTRAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6:352-354(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hum. Mutat. 1:70-71(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7:65-67(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               forms.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHOLINE PHOSPHATE.
                                                                                                                                                                                                                                                                                                                                                                                                                               Niemann-Pick disease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -! - SUBUNIT: MONOMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VARIANT NPD GLY-391.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               non-neuronopathic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Schuchman E.H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POPULATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cype A and B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mutat.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hum. Mutat.
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Brachydanio rerio (Zebrafish) (Zebra danio).
Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Actinopterygii; Neopterygii; Teleostei; Euteleostei; Ostariophysi;
Chordata, Craniata, Vertebrata, Euteleostomi,
Cetartlodactyla, Ruminantia, Pecora, Bovoidea,
                                                                                                    SEQUENCE FROM N.A.
STRAIN-SAANEN: TISSUE-Blood;
MEDLINE-93077039; PubMed=1446822;
ROBERTS B., Ditullio P., Vitale J., Hehir K., Gordon K.;
ROBERTS B., Contullio P., Vitale J., Rehir gene and expression in
                                                                                                                                                                                                   PHOSPHORYLATION (BY SIMILARITY)
PHOSPHORYLATION (BY SIMILARITY)
PHOSPHORYLATION (BY SIMILARITY)
PGEARI7746A01CD05 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ### PROOF TANGET TO PROPER TO PER PROOF TO PER PROPER PROOF TO PER PROPER PROPERTY PROOF TO PER PROPERTY PROOF TO PER PROPERTY PROP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15-DEC-1998 (Rel. 37, Created)
15-DEC-1998 (Rel. 37, Last Sequence update)
30-MAY-2000 (Rel. 39, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cyprinidae; Rasborinae; Danio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                262 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 43; DB
Pred. No. 37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APOLIPOPROTEIN A-I PRECURSOR (APO-AI).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TISSUE-Embryo;
MEDLINE-97385153; PubMed-9238027;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; M90556; AAA30906.1; JOINED
EMBL; M90557; AAA30906.1; JOINED
EMBL; M90558; AAA30906.1; JOINED.
EMBL; M90560; AAA30906.1; JOINED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          50 Pi
24865 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         44.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; M90561; AAA30906.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 44.8
Best Local Similarity 64.3
Matches 9; Conservative
                                       Bovidae; Caprinae; Capra.
NCBI_TaxID=9925;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |:||:|| ||||:
1 MKVLILACLVALAI 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 MRVLVLALAVALAV 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR001588
                             Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=7955;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cypriniformes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APAL BRARE
ID APAL BRARE
AC 042363;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PIR; JC1384;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MOD_RES
MOD_RES
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      entities requires a license agreement (See http://www.isb-sib.ch/announce/
or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                       IGGFYALSPYPG -> YLSSVETQEGKR (IN ISOFORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       L -> P (IN NPD TYPE A; 23% OF ASHKENAZI
JEMIZH TYPE A NPD).
FFIG-VAR 005060.
M -> I (IN NPD TYPE A).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R -> L (IN NPD TYPE A; 32% OF ASHKENAZI
JEWISH TYPE A NPD).
                                                                                                                                                                                                                                                 Hydrolase; Glycosidase; Lysosome; Glycoprotein; Alternative splicing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -> Q (IN NPD TYPE A; 30% RESIDUAL
                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                              SPHINGOMYELIN PHOSPHODIESTERASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1; Length 629;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (IN ISOFORM ASM-2).
(IN ISOFORM ASM-3).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9C64F04BD2A22A74 CRC64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'FTId-VAR_005063.
1 -> G (IN NPD TYPE A/B)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /FTId=VAR_005067.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /FTId=VAR_005066.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IISSING (IN ISOFORM ASM: -> R (IN NPD TYPE B).
TTId=VAR_005058.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FTId=VAR_005064.
; -> R (IN NPD TYPE B).
FTId=VAR_005065.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N -> S (IN NPD TYPE B).
/FTId=VAR_005062.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -> T (IN NPD TYPE A).
                                                                                                                                                                                                                                                                                                                                                                                                               N-LINKED (GLCNAC. . .)
N-LINKED (GLCNAC. . .)
                                                                                                                                                                                                                                                                                                                               N-LINKED (GLCNAC. ..)
N-LINKED (GLCNAC. ..)
                                                                                                                                                                                                                                                                                                                                                                                            (GLCNAC. . .)
                                                                                                                                                                                                                                                                                                                                                                       N-LINKED (GLCNAC. ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FTIG-VAR 005061.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FTIG=VAR_005059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (Rel. 27, Created)
(Rel. 27, Last sequence update)
(Rel. 39, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    222 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 44;
Pred. No. 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACTIVITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MISSING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MISSING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                               EMBL; M59916; AAA58377.1; -... EMBL; X63600; CAA45145.1; ALT_SEO. EMBL; X52679; CAA36901.1; -... EMBL; X52679; CAA36902.1; -... PIR; A39825; A39825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                629 AA; 69863 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 45.8%;
Best Local Similarity 71.4%;
Matches 10; Conservative
                                                                                                                                                                                                                                                                        mutation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3 VLVLALAVALAVGD 16
                                                                                                                                                                                                                                                                                                                                                                       335
395
503
520
374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRECURSOR
                                                                                                                                                                                      $06958; $06958.
$27009; $27009.
$57200; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Capra hircus (Goat)
                                                                                                                                                                                                                                                                      Signal; Disease
                                                                                                                                                                                                                                                                                                                                                                                                               503
520
363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BETA CASEIN
CSN2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-0CT-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-OCT-1993
30-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CASB_CAPHI
P33048;
                                                                                                                                                                                                                                                                                                                                                      CARBOHYD.
CARBOHYD
                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                         VARSPLIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VARSPLIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VARSPLIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VARIANT
                                                                                                                                                                                                                                                                                             SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CASB_CAPHI
ID CASB_C
AC P33048
DT 01-0C7
DT 30-MAN
DE BETA
GN CSN2.
OS CAPIA
```

ö

Gaps

ö

g

Length 222 Indels

```
MEDLINE=93000472; PubMed=1388724;
                                                                                                                                                                                                                                                                                                                                                                                                 dystrophy.
  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BGH3_HUMAN STANDARD; PRT; 683 AA.
015582; 043216; 043217; .043218; 044471; 014472; 014476;
01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last 'sequence update)
30-MAY-2000 (Rel. 39, Last annotation update)
TRANSFORMING GROWTH FACTOR-BETA INDUCED PROTEIN IG-H3 PRECURSOR (BETA
                        DURING EMBRYONIC (STARTING AT THE GASTRULA STAGE) AND EARLY LARVA
DEVELOPMENT, AN EXTRAEMBRYONIC STRUCTURE IMPLICATED IN EMBRYONIC
                                                                                                                                                                                                                                                        Cholesterol metabolism; Repeat; Signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                   nonmammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                            3 X APPROXIMATE TANDEM REPEATS.
10 X APPROXIMATE TANDEM REPEATS.
Babin P.J., Thisse C., Durliat M., Andre M., Akimenko M.-A.,
                                                                                                                            SIMILARITY: BELONGS TO THE APOA1 / APOA4 / APOE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                              44.8%; Score 43; DB 1; Length 262;
45.0%; Pred. No. 42;
Live 5; Mismatches 6; Indels
                                                                                                                                                                                                                                                                                                                                                                                                      BB839A0A815365B9 CRC64;
                 "Both apolipoprotein E and A-I genes are present in a
                                                                                                                                                                                                                                                                                    APOLIPOPROTEIN A-I.
                                                                                                                                                                                                                                                                                                                                                                                    (HALF-LENGTH).
                                                                                                                                                                                                                                                                                                                               (HALF-LENGTH)
                                                                                                                                                                                                                                                                 POTENTIAL.
                                                                                                                                                                                                                                                                            POTENTIAL
                                                                                                                                                                                                                                              Pfam; PF01442; Apolipoprotein; 1
                                                                                                                                                                                                                             ZDB-GENE-990415-14; apoa.
                                                                                                                                                                                                                                                         HDL;
                                                                                                                                                                                                                                                                                                                                                                                                     30256 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MRVLVLALAVALAVGDGSNL 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MKFVALALTLLALGSOANL 20
                                                                                                                                                                                                                    EMBL; X13653; CAA74004.1; -.
                                                                                                                   AND LARVAL NUTRITION.
                                                                                                                                                                                                                                                        Plasma; Lipid transport;
                                                                                                                                                                                                                                                                                                                                                                                                                                                9; Conservative
                                                                                                                                                                                                                                     nterPro; IPR000074; -
                                                                                                                                                                                                                                                                  18
262
63
63
262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens (Human).
                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                     262 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GFBI OR BIGH3.
                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (RGD-CAP)
                                                                                                                                                                                                                                                                                                                              REPEAT
REPEAT
REPEAT
                                                                                                                                                                                                                                                                                           DOMAIN
                                                                                                                                                                                                                                                                                                                     REPEAT
                                                                                                                                                                                                                                                                                                                                                         REPEAT
                                                                                                                                                                                                                                                                                                                                                                 REPEAT
                                                                                                                                                                                                                                                                                                                                                                           REPEAT
                                                                                                                                                                                                                                                                                                                                                                                   REPEAT
                                                                                                                                                                                                                                                                 SIGNAL
                                                                                                                                                                                                                                                                                                             REPEAT
                                                                                                                                                                                                                                                                                                                                                                                           REPEAT
                                                                                                                                                                                                                                                                                    CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BGH3_HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
ô
```

```
MEDLINE=98130534; PubMed=9463327;
Korvatska E., Munier F.L., Djemai A., Wang M.X., Frueh B.,
Chiou A.G.-Y., Offer S., Ballestrazzi E., Braunstein R.E.,
Forster R.K., Culbertson W.W., Boman H., Zografos L., Schorderet D.F.;
"Mutation hot spots in 5q31-linked corneal dystrophies.";
Am. J. Hum. Genet. 62:320-324(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Serra A., Pirastu M.;

"A common beta ig-h3 gene mutation (delta F540) in a large cohort of Sardinian Reis Buecklers' corneal dystrophy patients.";

Hum. Mutat. 12:215-216(1998).

- FUNCTION: BINDS TO TYPE I, II, AND IV COLLAGENS. THIS ADHESION PROTEIN MAY PLAY NIMPORTANT ROLE IN CELL-COLLAGEN INTERACTIONS.

- SUBCELLULAR LOCATION: EXTRACELLULAR. MAY BE ASSOCIATED BOTH WITH MACROFIENTS. AND WITH THE CELL SURFACE.

- INDUCTION: BY TGF-BETA.

- INDUCTION: BY TGF-BETA.

- DISEASE: DEPECTS IN TGFBI ARE THE CAUSE OF AT LEAST FIVE AUTOSOMAL DOMINANT TYPES OF CORNEAL DYSTROPHIES: GRANILAR DYSTROPHY GROEBOUW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Munier F.L., Korvatska E., Djemai A., le Paslier D., Zografos L., Pescia G., Schorderet D.F.;
Pescia G., Schorderet D.F.;
"Kcrato-epithelin mutations in four 5q31-linked corneal dystrophies.";
Nat. Genet. 15:247-251(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "A kerato-epithelin (beta-ig-h3) mutation in lattice corneal dystrophy
type IIIA.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kimmerly W., Bondoc M., Cheng J., Connolly K.S., Gunning K.M., Davis C.A., Kadner K., Miguel T., Pitluck S., Pollard M., Rojeski H., Subramanian S., Martin C.H., Submitted (JUL-1998) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VARIANT CDRB LEU-124.
MEDLINE-98451378; Pubmed-9780098;
MEDLINE-98451378; Pubmed-9780098;
Okada M., Yamamoto S., Tsujikawa M., Watanabe H., Inoue Y., Maeda N., Shimomura Y., Nishida K., Quantock A.J., Kinoshita S., Tano Y.;
Two distinct kerato-epithelin mutations in Reis-Bucklers corneal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE I (CDGG1), REIS-BUECKLERS CORNEAL DYSTROPHY (CDRN), LATTICE CORNEAL DYSTROPHY TYPES I AND ILIA (CDL1 AND CDEJA) AND AVELLING CORNEAL DYSTROPHY (ACD). CLINICALLY THEY SHOW PROGRESSIVE OPACIFICATION OF THE CORNEA LEADING TO SEVERE VISUAL HANDICAP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VARIANT CDRB PHE-540 DEL.
Rozzo C., Fossarello M., Galleri G., Sole G., Serru A., Orzalesi N.,
Serra A., Pirastu M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-99013426; PubMed-9799082; Fujiki K., Hotta Y., Nakayasu K., Yokoyama T., Takano T., Yamaguchi T., Kanai A.; Ranai 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VARIANTS CORNEAL DYSTROPHIES CYS-124; HIS-124; GLN-555 AND TRP-555.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VARIANTS CORNEAL DYSTROPHIES CYS-124; HIS-124; GLN-555 AND TRP-555.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE-97207642; PubMed-9054935;
Munier F.L., Korvatska E., Djemai A., le Paslier D., Zografos L.,
                                                                                                                                                    "CDNA cloning and sequence analysis of beta ig-h3, a novel gene induced in a human adeoccarcinoma cell line after treatment with transforming growth factor-beta.";

DNA Cell Biol. 11:511-522(1992).
Skonier J., Neubauer M., Madisen L., Bennett K., Plowman G.D., Purchio A.F.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Yamamoto S., Okada M., Tsujikawa M., Shimomura Y., Nishida
Inoue Y., Watanabe H., Maeda N., Kurahashi H., Kinoshita S.
Nakamura Y., Tano Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Am. J. Ophthalmol. 126:535-542(1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Am. J. Hum. Genet. 62:719-722(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=98163459; PubMed=9497262;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VARIANT CDL3A THR-501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VARIANT CDL1 ARG-527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
```

MEDLINE-97267655; PubMed-9112985;

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics. The First on its use by non-profit institutions as long as its content is no usy modified and this statement is not removed. Usage by and for statement is not removed. Usage by and for connecroin entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 30-MAY-2000 (Rel. 39, Created)
30-MAY-2000 (Rel. 39, Last sequence update)
30-MAY-2000 (Rel. 39, Last annotation update)
TRANSFORMING GROWTH FACTOR-BETA INDUCED PROTEIN IG-H3 PRECURSOR (BETA IG-H3) (KERATO-EPITHELIN) (RGD-CONTAINING-COLLAGEN ASSOCIATED PROTEIN) (RGD-CAP).
                                                                                                                                                                                                                                                                                                                                                                                                         Cell adhesion; Disease mutation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                   TRANSFORMING GROWTH FACTOR-BETA INDUCED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Oryctolagus cuniculus (Rabbit).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CELL ATTACHMENT SITE (POTENTIAL).
R -> C (IN CDL1).
/FTId-VAR_005076.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /FTId=VAR_005079.

-> R (IN CDL1, LATE-ONSET).

/FTId=VAR_005080.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 683;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FTIG=VAR_005083.
40FDC8A71EBB3D00 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MISSING (IN CDRB).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               W (IN CDGG1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 43; DB 1;
Pred. No. 90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   T (IN CDL3A)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -> Q (IN CDRB).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FTIG-VAR_005082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FTIG=VAR_005077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FTIG=VAR_005078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            683 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROTEIN IG-H3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            [1]
SEQUENCE FROM N.A.
STRAIN-NEW ZEALAND WHITE; TISSUE-COFNEA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FTIG-VAR
                                                                                                                                                                                                                                                                                                                                                                                                           Repeat;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BIGH3
BIGH3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BIGH3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BIGH3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ۰
                                                                                                                                                                                                    AC004503; AAC08449.1; -.
                                                                                                                                                                                                                            .005219; AAC24944.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MW.
                                                                                                                                                                                                                                                                                                                                                                                                         Signal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             44.8%;
                                                                                                                                                                                                                                              AAB88695.1;
                                                                                                                                                                                                                                                                      AAB88698.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VLVLALAVALAVGDGSNL 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S VRLLALALALAGPAATL 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         74680
                                                                                                                                                                               EMBL; M77349; AAA61163.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  236
371
498
632
644
124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           527
                                                                                                                                                                                                                                                                                                                                                                                                         Extracellular mátrix;
SIGNAL 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      683 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=9986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BGH3_RABIT
AC 095215;
DT 30-MAY-2000
DT 30-MAY-2000
DE TRANSFORMING
DE IG-H3) (KERA
DE (GCD-CAP).
GN TGFBI.
OS OTYCLOLAGUS
OC NCBI_TAXID-9
RN KILL
RN KILL
RN KENALOR
                                                                                                                                                                                                                                                                                                                                                             121900;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DOMAIN
                                                                                                                                                                                                                                                                    EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                       EMBL;
                                                                                                                                                                                                                                                                                                                                                               MIM;
g
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation between the Enopean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                             INVEST. OPHTHALMOL. VIS. SCI. 38:893-900(1997).

-I FUNCTIONE BINDS TO TYPE I, II, AND IV COLLAGENS. THIS ADHESION PROTEIN MAY PLAY AN IMPORTANT ROLE IN CELL-COLLAGEN INTERACTIONS.

IN CARTLLAGE, MAY BE INVOLVED IN ENDOCHONDRAL BONE FORMATION. MAY PLAY AN IMPORTANT ROLE IN THE MORPHOGENESIS OF CORNEAL TISSUES.

-I SUBCELLULAR LOCATION: EXTRACELLULAR, MAY BE ASSOCIATED BOTH WITH MICROFIBRILS AND WITH FRE CELL SURREACE (BY SIMILARITY).

-I TISSUE SPECIFICITY: LOCATED PRIMARILY IN THE EPITHELIUM OF NORMAL ADULT CORNEA, IN PETAL STROMAL CELLS, AND BOTH ENDOTHELIUM AND STROMA-DERIVED CELLS IN HEALING CORNEAL WOUNDS. NOT EXPRESSED IN NORMAL ADULT ENDOTHELIUM AND STROMA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Halleck M.S., Lawler J.F. Jr., Blackshaw S., Gao L., Nagarajan P., Hacker C., Pyle S., Newman J.T., Nakanishi Y., Ando H., Weinstock D., Williamson P., Schlogel R.A.; trifferential expression of putative transbilayer amphipath transporters.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; Repeat; Cell adhesion.
BY SIMILARITY.
TRANSFORMING GROWTH FACTOR-BETA INDUCED
PROTEIN IG-H3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
           Rawe I.M., Zhan Q., Burrows R., Bennett K., Cintron C.;
"Beta-ig, Molecular cloning and in situ hybridization in corneal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Physiol. Genomics 1:139-150(1999).

-!- CATALYTIC ACTIVITY: ATP + H(2)0 = ADP + ORTHOPHOSPHATE.

-!- SUBSCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN.

-!- TISSUE SPECIFICITY: FOUND IN TESTIS, HEART AND BRAIN. MOST

ABUNDANT IN TESTIS. ALSO DETECTED IN FETAL TISSUES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CELL ATTACHMENT SITE (POTENTIAL). 4548520497548CD6 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                30-MAY-2000 (Rel. 39, Created)
30-MAY-2000 (Rel. 39, Last sequence update)
30-LOCT-2000 (Rel. 40, Last annotation update)
POTENTIAL PHOSPHOLIPID-TRANSPORTING ATPASE IB (EC 3.6.1.-).
Mus musculus (Mouse).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 683;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 1;
90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT; 1148 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No. 90;
4; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                            or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BIGH3 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BIGH3 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; U66205; AAB07015.1; ALT_FRAME.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BIGH3
BIGH3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN-ICR;
MEDLINE-20473714; PubMed-11015572;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  74684 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Extracellular matrix; Signal; SIGNAL 1 23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      44.8%;
                                                                                                                                                                                                                                                                            INDUCTION: BY TGF-BETA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3 VLVLALAVALAVGDGSNL 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | :|||:|||:|| : |
5 VRLLALALALGPAATL 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity 55.6
nes 10, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                683 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AT1B_MOUSE
P98200;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                      tissues.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 11 ATIB_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
```

ö

```
cholestasis.";
Nat. Genet. 18:219-223(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    243300;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              147480;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSMEM
  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                             use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A., AND VARIANTS PFICI AND BRIC.
TISSUE-Liver, and Intestine;
MEDLINE-98160178; PubMed-9500542;
Bull L.N., van Eijk M.J.T., Pawlikowska L., DeYoung J.A., Juijn J.A., Lido M., Klomp L.W.J., Lowri N., Berger R., Scharschmidt B.F.,
Knisely A.S., Houwen R.H.J., Freimer N.B.;
A gene encoding a P-type ATPase mutated in two forms of hereditary
SIMILARITY: BELONGS TO THE CATION TRANSPORT ATPASES FAMILY (E1-E2 ATPASES). SUBFAMILY IV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              30-MAY-2000 (Rel. 39, Last sequence update)
30-MAY-2000 (Rel. 39, Last annotation update)
POTENTIAL PHOSPHOLIPID-TRANSPORTING ATPASE IC (EC 3.6.1.-) (FAMILIAL
                                                                                                                                       Hydrolase; Transmembrane; Phosphorylation; Magnesium; ATP-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalla; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                      CYTOPLASMIC (POTENTIAL).
PHOSPHORYLATION (BY SIMILARITY).
MAGNESIUM (BY SIMILARITY).
MAGNESIUM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 43; DB 1; Length 1148; Pred. No. 1.4e+02; 3; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                 A668D6F343CAAAB8 CRC64;
                                                                                                                                                                                                                         EXTRACELLULAR (POTENTIAL):
                                                                                                                                                                                                                                                                   EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                             EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                               EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                     EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                                              CYTOPLASMIC (POTENTIAL).
                                                                                                                                                           CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                    CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                              CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                        CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT; 1251 AA.
                                                                                                                                                                                                               POTENTIAL.
                                                                                                                                                                                                                                                          POTENTIAL.
                                                                                                                                                                      POTENTIAL
                                                                                                                                                                                                                                     POTENTIAL
                                                                                                                                                                                                                                                                               POTENTIAL
                                                                                                                                                                                                                                                                                                  POTENTIAL
                                                                                                                                                                                                                                                                                                                        POTENTIAL
                                                                                                                 EMBL; AF156550; AAF09448.1; -.
PROSITE; PS00154; ATPASE_E1_E2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INTRAHEPATIC CHOLESTASIS TYPE 1). FIC1 OR PFIC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   30-MAY-2000 (Rel. 39, Created)
30-MAY-2000 (Rel. 39, Last segu
30-MAY-2000 (Rel. 39, Last anno
                                                                                                                                                                                                                                                                                                                                                                                                                                                44.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                  129416
                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity 63.00,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                               049
                                                                                                                                                                                                                                                                                                                                                                                  388 38
781 78
785 78
1148 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |: ||:||:|
774 AITLAIGDGAN 784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9 AVALAVGDGSN 19
                                                                                                                                                 Multigene family
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID-9606;
                                                                                                                                                                                                                                                                                                                                                              1025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATIC_HUMAN
ID ATIC_HUMAN
AC 043520;
                                                                                                                                                                               DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                         TRANSMEM
DOMAIN
                                                                                                                                                                     PRANSMEM
                                                                                                                                                                                                                                                                                        DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                       'RANSMEM
                                                                                                                                                                                                               PRANSMEM
                                                                                                                                                                                                                                                        PRANSMEM
                                                                                                                                                                                                                                                                             RANSMEM
                                                                                                                                                                                                                                                                                                                                                               PRANSMEM
                                                                                                                                                                                                                                    RANSMEM
                                                                                                                                                                                                                                                                                                                                                                        DOMAIN
MOD_RES
                                                                                                                                                                                                                         DOMAIN
                                                                                                                                                                                                                                              DOMAIN
                                                                                                                                                            DOMAIN
                                                                                                                                                                                                    DOMAIN
                                                                                                                                                                                                                                                                                                                                  DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
```

```
-IDERTORE ADDITION.
-IDERTORE ADDITION.
-IDERTORE ADDITION.
-IDERTORE ADDITION.
-IDERTORE DEFECTS IN FICT ARE THE CAUSE OF BENICON RECURRENT AND ATTOSOMAL RECESSIVE DISORDER, CHARACTERIZED BY INTERNITTENT EPISODES OF CHOLESTASIS WITHOUT EXTRAHEPATIC BILE DUCT OBSTRUCTION, WITH INTIAL ELEVATION OF SERON BILE ACIDS, FOLLOWED BY CHOLESTATIC JAUNDICE WHICH GENERALLY SPONTANEOUSLY RESOLVES AFTER PERIODS OF WEEKS TO MONTHS.
-IDERTORE CHOLESTASIS, CHARACTERIZED BY GENERALIZED ITCHING, WITH RELATED CHOLESTASIS, CHARACTERIZED BY GENERALIZED ITCHING, WITH OR WITHOUT JAUNDICE, ABSENCE OF BILLARY COLLC, ABSENCE OF JAUNDICE OF PRIGNARY (PRIMARILY IN THE THIRD THINGSTER), AND DISAPPEARS SHORTLY POSTPARTUM. MAY BE A FEMALE-LIMITED AUTOSOMAL DOMINANT INHERITANCE.
-ILMILABILY: BELONGS TO THE CATION TRANSPORT ATPASES FAMILY (E1-E2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYGSTUDY N., Steig B.A., July J.A., Bull L.N., Houwen R.H.J.;

TYGSTUDY N., Steig B.A., July J.A., Bull L.N., Houwen R.H.J.;

TYGSTUDY N., Steig B.A., July J.A., Bull L.N., Houwen R.H.J.;

TYGSTUDY PRODUCTION TO THE TOWN THE TRANSPORT OF AMINOPHOSPHOLIPIDS FROM THE OUTER TO THE INNER LEAFLET OF VARIOUS MEMBRANES AND THE MAINTENANCE OF ASYMMETRIC DISTRIBUTION OF PHOSPHOLIPIDS IN THE MAINTENANCE OF ASYMMETRIC DISTRIBUTION OF PHOSPHOLIPIDS IN THE CANICULAR MEMBRANE. MAY HAVE A ROLE IN TRANSPORT OF BILE ACIDS INTO THE CANALICULUS, UPTAKE OF BILE ACIDS FROM INTESTINAL CONTENTS INTO INTESTINAL MUCOSA OR BOTH.

CONTENTS INTO INTESTINAL MUCOSA OR BOTH.

CHARLET LOLEST FOUND IN MOST TISSUES EXCEPT BAIN AND SKELETAL MUSCLE. MOST ABUNDANT IN PANCREAS AND SMALL INTESTINE.

CHOLESTASE: DEFECTS IN FICI ARE THE CAUSE OF PROGRESSIVE FAMILIAL INTENDED BY EARLY INFANCY CHOLESTASIS, THAT MAY BE INITIALLY EPISODIC BUT PROGRESSES TO MALUNDENT RETARDATION AND END-STAGE LIVER DISEASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL outstation
                                                                                                                                                                                                               "Multiple members of a third subfamily of P-type ATPases identified by genomic sequences and ESTs.";
Genome Res. 8:354-361(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfan; PF00122; E1-E2 ATPase; 3.
PROSITE; PS00154; ATPASE_E1_E2; 1.
Hydrolase; Transmembrane; Phosphorylation; Magnesium; ATP-binding;
                                                                                                                              Halleck M.S., Pradhan D., Blackman C., Berkes C., Williamson P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            between the Swiss Institute of Bioinformatics and the the European Bioinformatics Institute. There are no re
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Disease mutation; Multigene family.

CYTOPLASMIC (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE-99119414; PubMed-9918928;
                                             TISSUE=Colon tumor;
MEDLINE=98217376; PubMed=9548971;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; AF038007; AAC63461.1; -. EMBL; AF032442; AAC04328.1; -.
SEQUENCE OF 388-661 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATPASES). SUBFAMILY IV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR001757; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BEFORE ADULTHOOD.
                                                                                                                                                                                                                                                                                                                                                                                      VARIANT BRIC THR-661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   109
                                                                                                                                                                           Schlegel R.A.;
```

and for commercial

Usage by

not removed

Mon May

```
modified and this statement is
                                                                                                                                                                                                               Query Match
Best Local Similarity 61.1
Matches 11; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                                                                                                                                                                7 ALAVALAV---GDGSNLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR000746;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 27-61.
                                                                                                                                                                  80 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ECLOSION
                                                                                                                                                                                                                                                                                                                                                                                                    PBP_MANSE
P18959:
                                                                                                                                                                  SEQUENCE
                                                                                                                                 SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                     PBP_MANSE
                                                                                                                                                                                                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                    ò
 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bloinformatics and the EMBL outstation the European Bloinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P32686; Q923E1;
01-CCT-1993 (Rel. 27, Created)
01-CCT-1993 (Rel. 27, Last sequence update)
01-CCT-2000 (Rel. 40, Last annotation update)
HYPOTHETICAL 7.4 KDA PROTEIN IN PGI-XYLE INTERGENIC REGION PRECURSOR.
VJBE OR B4026.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Analysis of the Escherichia coli genome. IV. DNA sequence of the region from 89.2 to 92.8 minutes."; Nucleic Acids Res. 21:5408-5417(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Escherichia coli.
Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 non-profit institutions as long as its content is
                                                                                                                                                                                                                                                                                                                 PHOSPHORYLATION (BY SIMILARITY).
MAGNESIUM (BY SIMILARITY).
MAGNESIUM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 43; DB 1; Length 1251;
Pred. No. 1.5e+02;
3; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Blattner F.R., Burland V.D., Plunkett G. III; Sofia H.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        271EFE24EDA6E144 CRC64;
EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                   EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                    EXTRACELLULAR (POTENTIAL)
               POTENTIAL.
CYTOPLASMIC (POTENTIAL).
POTENTIAL.
EXTRACELLULAR (POTENTIAL)
                                                                                                                                 EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                CYTOPLASMIC (POTENTIAL). POTENTIAL.
                                                                                 POTENTIAL. CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                   CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                   CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                       MISSING (IN PFIC1).
                                                                                                                                                                                                                                                                                                                                                                                                        G -> V (IN PFIC1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (IN BRIC).
                                                                                                                                                                                                                                                                                                                                                                       -> S (IN PFIC1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                        FTIG-VAR 008811.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3 -> R (IN PFIC1)
                                                                                                                                                                                                                                                                                                                                                                                     FTIG-VAR_008809
                                                                                                                                                                                                                                                                                                                                                                                                                       FTIG=VAR 008810
                                                                                                                                                                                                                      POTENTIAL.
                                                                                                                                                                                                                                                      POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
STRAIN-K12 / MG1655;
MEDLINE-94089392; PubMed-8265357;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       44.8%;
illarity 63.6%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1251 AA; 143725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        892
                                                                                                                                                  0002
0032
0054
0091
0097
1118
1118
454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9 AVALAVGDGSN 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         795
                                                                                                                                                                                                                                                                                                                                                    897
                                                                                                                                                                                                                                                                                                                                                                                                      308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=562;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Daniels D.L.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Escherichia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KJBE_ECOLI
                                  DOMAIN
TRANSMEM
DOMAIN
TRANSMEM
                                                                                                    DOMAIN
TRANSMEM
                                                                                                                                                                  DOMAIN
TRANSMÉM
                                                                                                                                                                                                   DOMAIN
TRANSMEM
                                                                                                                                                                                                                                   DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                    DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                 RANSMEM
                                                                                                                                                    RANSMEM
                                                                                                                                                                                                                                                                                                                                                     METAL
VARIANT
                                                                                                                                                                                                                                                                                                                     MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                      VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                       VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /ARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /ARIANT
                                                                                                                                   DOMAIN
                                                                                                                                                                                                                                                                                                     DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TUBE_ECOLI

ID FUBE_ECOLI

ID 01-000

DT 01-000

DT 01-000

DE HYPOT

DE HYPOT

DE RECHE

OC ESCHE

OC ESC
                                                                                                                                                                                                                                                                                                                                        METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         qq
   ð
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ï
(See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE-91186129; PubMed-2010751; Vogt R.G., Prestwich G.D., Lerner M.R.; Vogt R.G., Prestwich G.D., Lerner M.R.; *Odorant-binding-protein subfamilies associate with distinct classes of of lifactory receptor neurons in insects.*; J. Neurobiol. 22:74-84(1991).

1. Neurobiol. 22:74-84(1991).

2. FUNCTION: THIS MAJOR SOLUBLE PROTEIN IN OLFACTORY SENSILLA OF NALE MOTHS MIGHT SERVE TO SOLUBLILIZE THE EXTREMELY HYDROPHOBIC PHEROMONE MOLECULES AND TO TRANSPORT PHEROMONE THROUGH THE AQUEOUS LYMPH TO RECEPTORS LOCATED ON OLFACTORY CILIA. PBP IS ALSO FOUND IN SENSILLA FROM FEMALE M.SEXTA ANTENNAE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Manduca sexta (Tobacco hawkmoth) (Tobacco hornworm).
Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Pteryyota; Neoptera; Endopterygota; Lepidoptera; Glossata; Ditrysia;
Sphingiodea; Sphingidae; Sphinginae; Manduca.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gyoergyi T.K., Roby-Shemkovitz A.J., Lerner M.R.; "Characterization and cDNA cloning of the pheromone-binding protein from the tobacco hornworm, Manduca sexta: a tissue-specific
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEVELOPMENTAL STAGE: ITS SYNTHESIS OCCURS AROUND THE TIME OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'n
                                                                                                                                                                                                                                                                                                                                                                                                                             Length 80;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1990 (Rel. 16, Last sequence update)
30-MAY-2000 (Rel. 39, Last annotation update)
PHEROMONE-BINDING PROTEIN PRECURSOR (PBP).
Manduca sexta (Tobacco hawkmoth) (Tobacco hornworm).
                                                                                                                                                                                                                                                                                         HYPOTHETICAL PROTEIN YJI
A34F87939E466272 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Proc. Natl. Acad. Sci. U.S.A. 85:9851-9855(1988)
                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -!- SIMILARITY: BELONGS TO THE PBP/GOBP FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 42.5; DI
Pred. No. 19;
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A., AND SEQUENCE OF 27-56.
MEDLINE-89071794; Pubmed=3200861;
                                 or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                        POTENTIAL.
entities requires a license agreement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     developmentally regulated protein.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TISSUE SPECIFICITY: ANTENNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-NOV-1990 (Rel. 16, Created)
                                                                                                         EMBL; U00006; AAC43120.1; -. EMBL; AE000476; AAC76996.1; -ECGGene; EG11923; yjbe. Hypothetical protein; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; M21797; AAA29325.1; -.
EMBL; M21798; AAA29326.1; -.
                                                                                                                                                                                                                                                                                                                           7386 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           53 AVGVALAATGGGDGSNTG 70
```

```
SHHHHH
                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaboration between the SWISS Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HDL; Cholesterol metabolism; Repeat; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -1- FUNCTION: ADOA-1 PARTICIPATES IN THE REVERSE TRANSPORT OF CHOLESTEROL FROM TISSUES TO THE LIVER FOR EXCRETION BY PROMOTING CHOLESTEROL EFFLUX FROM TISSUES AND BY ACTING AS A COFACTOR FOR THE LECITHIN CHOLESTEROL ACYLTRANSFERASE (LCAT).
-1- SUBCELLULAR LOCATION: EXTRACELLULAR.
-1- TISSUE SPECIFICITY: MAJOR PROTEIN OF PLASMA HDL, ALSO FOUND IN CHILOMICRONS: EXPRESSED IN LIVER, INTESTINE, AND MUSCLE.
-1- SIMILARITY: BELONGS TO THE APOAL / APOA / APOE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "The salmon gene encoding apolipoprotein A-I: cDNA sequence, tissue expression and evolution."; Gene 104:155-161(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-92009208; PubMed-1916288; Powell R., Higgins D.G., Wolff J., Byrnes L., Stack M., Sharp P.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Actinopteryyji; Neopteryyji; Teleostei; Euteleostei;
Protacanthopteryyji; Salmoniformes; Salmonidae; Salmo.
NCBI_TaxID-8030;
                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3 X APPROXIMATE TANDEM REPEATS.
10 X APPROXIMATE TANDEM REPEATS.
                                                                                                                                               Score 42; DB 1; Length 168; Pred. No. 40; 4; Mismatches 3; Indels
                                                           PHEROMONE-BINDING PROTEIN
                                                                         29 D -> E.
120 I -> V.
18516 MW; OFCIF18D1908ADF1 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APOLIPOPROTEIN A-I.
                                                                                                                                                                                                                                                                                                                                            01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
30-MAY-2000 (Rel. 39, Last annotation update)
AUGULPOPROTEIN A-I PRECURSOR (APO-AI).
Salmo salar (Atlantic salmon).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (HALF-LENGTH)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POTENTIAL
Pfam; PF01395; PBP_GOBP; 1.
PRINTS; PR00484; PBPGOBP.
Pheromone response; Transport; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR000074; ... Pfam; PF01442; Apolipoprotein; 1.
                                                                                                                                               43.8%;
ilarity 56.2%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; X52237; CAA36482.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        lasma; Lipid transport;
                                                                                                                                                                                                            1 MRVLVLALAVALAVGD 16
                                                                                                                                                                                                                            |:| |:|: | |||:
8 MKVAVVAIVVYLAVGN 23
                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    31
258
63
258
258
85
117
117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PIR; JH0472; JH0472.
PIR; S26810; S26810.
                                                                                                       168 AA;
                                                                                                                                                               Local Similarity
nes 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                         27
29
120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TISSUE-Liver;
                                                                                                                                                                                                                                                                                                                     APA1_SALSA
P27007;
                                                                                       VARIANT
SEQUENCE
                                                                                                                                                  Query Match
                                                           CHAIN
VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MAIN
                                              SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DOMAIN
                                                                                                                                                                                                                                                                                    RESULT 15
APA1_SALSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REPEAT
                                                                                                                                                               Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                        g
```

```
FT REPEAT 140 161 5.
FT REPEAT 162 183 6.
FT REPEAT 184 205 7.
FT REPEAT 206 227 8.
FT REPEAT 208 238 9.
FT REPEAT 239 258 10.
SQ SEQUENCE 258 AA; 29448 MW; 44B6C7E82D8179F3 CRC64;
SQ SEQUENCE 258 AA; 29448 MW; 60.0%; Pred. No. 57; Matches 9; Conservative 2; Mismatches 4; Indels 0; Gaps Qy 1 MRVLVLALAVALAVG 15

Oy 1 MRVLVLALAVALAVG 15
Db 1 MKFLVLALTILLAAG 15
Search completed: May 3, 2001, 15:52:54
Job time: 73 sec
```

Arabidopsis thalia

Arabidopsis thalia Arabidopsis thalia Arabidopsis thalia Arabidopsis thalia Arabidopsis thalia Arabidopsis thalia Human ocif sphingo Deltar608 ASM. Howo SL302P ASM. Homo s L1302P ASM. Homo s Human acid sphingo Human acid sphingo

Peptoc Peptoc

Protein L. Protein L.

Mouse lymphoid der Cosmid CHRIMS enco Human beta-IG-H3 (Human colon tumour

Beta-casein.

betaIG-H3 protein.

Title: Perfect score:

Run on:

Sequence:

Scoring table:

Searched:

```
Vtgss, vitellogenin; secretory signal sequence; gene expression; oestrogen receptor binding protein; systemic circulation.

    aureus vitellogenin secretory signal sequence.

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
15..16
                                                                                                                                                                                                                                                                                                                                                B41613
                                                                                                                                                                                                                                                                                                                                                                                                       G54665
                                                                   G49239
                                                   G14877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99WO-SG00108.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Y92778 standard; Peptide; 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98US-0106426.
99US-0426776.
                                                                                                                                                                                                                       221
114
117
117
118
119
119
117
117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (UYSI-) UNIV SINGAPORE NAT (LAMI/) LAM I J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                         423
466
                                                                                                                                                                629
629
                                                                                                                                                                                                                                    .027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Oreochromis aureus.
4442.3
422.7
7.244
7.24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200026366-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cleavage-site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               30-OCT-1998;
26-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29-AUG-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11-MAY-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Y92778;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           92778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /tgss-CrFCES fusio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   O. aureus vitellog
Vtgss-CAT fusion p
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /tgss-beta-lactama
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Arabidopsis thalia
Arabidopsis thalia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /tgss-EGFP fusion
                                                                                               May 3, 2001, 15:51:41 ; Search time 18.59 Seconds (without alignments) 64.574 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /SIDS6/gcgdata/geneseq/geneseqp/AA1997.DAT:*
/SIDS6/gcgdata/geneseqp/AA1998.DAT:*
/SIDS6/gcgdata/geneseq/geneseqp/AA1999.DAT:*
/SIDS6/gcgdata/geneseq/geneseqp/AA2000.DAT:*
/SIDS6/gcgdata/geneseq/geneseqp/AA2001.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                               /SIDS/ycgdata/geneseq/geneseqp/AA1982.DAT:*/SIDS6/gcgdata/geneseq/geneseqp/AA1983.DAT:*/SIDS6/gcgdata/geneseq/geneseqp/AA1983.DAT:*/SIDS6/gcgdata/geneseq/geneseqp/AA1985.DAT:*/SIDS6/gcgdata/geneseq/geneseqp/AA1985.DAT:*/SIDS6/gcgdata/geneseq/geneseqp/AA1986.DAT:*/SIDS6/gcgdata/geneseq/geneseqp/AA1987.DAT:*/SIDS6/gcgdata/geneseq/geneseqp/AA1988.DAT:*/SIDS6/gcgdata/geneseq/geneseqp/AA1988.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gcgdata/geneseq/geneseqp/AA1989.DAT:
gcgdata/geneseq/geneseqp/AA1990.DAT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /SIDS6/gcgdata/geneseq/yeneseqp/AA1993.DAT:
/SIDS6/gcgdata/geneseq/geneseqp/AA1994.DAT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /SIDS6/gcgdata/geneseq/geneseqp/AA1991.DAT./SIDS6/gcgdata/geneseq/geneseqp/AA1992.DAT
                                                                                                                                                                                                                                                                                                                                                                                                                    /SIDS6/gcgdata/geneseq/geneseqp/AA1980.DAT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /SIDS6/gcgdata/geneseq/geneseqp/AA1995.DAT
/SIDS6/gcgdata/geneseq/geneseqp/AA1996.DAT
                                                                                                                                                                                                                                                                                                                                                                                                                                      /SIDS6/gcgdata/geneseq/geneseqp/AA1981.
                 GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                Notal number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                   390729 seqs, 57163235 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUMMARIES
                                                                                                                                                                                                                                                                                                                                                 Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                        OM protein - protein search, using sw model
                                                                                                                                                                                 1 MRVLVLALAVALAVGDGSNLG 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CO8134
G08134
G14879
G49241
G49246
G08133
G14878
                                                                                                                                                                                                            BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Y92778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         n.
                                                                                                                                                                                                                                                                                                          Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                 US-09-426-776-10
96
                                                                                                                                                                                                                                                                                                                                                                                                       A_Geneseq_0401:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query
Match Length
```

••

Database

Ding JL, Tan NS, Ho B;

WPI; 2000-365615/31 N-PSDB; A28495.

Arabidopsis thalia Arabidopsis thalia

Arabidopsis thalia Arabidopsis thalia

Score

٠ و

Result

88888444444

Sequence encoded b Human beta-casein.

Beta-casein.

Mycobacterium Kans Human cholestatin.

Human ORFX ORF1377

Arabidopsis thalia Arabidopsis thalia

Wheat germ aggluti

```
This sequence is that of a piscine, Oreochromis aureus, vitellogenin secretory sequence (Vtgss). This and variants that comprise conservative replacements that retain the biological activities of directing secretion of a fusion protein from a cell and cleavage of the secretory signal sequence from the fusion protein, are new. DNA encoding the Vtgss can be fused to either a reporter protein or a lipopolysaccharide-binding for oding sequence. The isolated nucleic acid is useful for assaying for heterologous gene expression, detecting the presence of a compound that binds to an oestrogen receptor in a sample or producing a desired protein from a host cell. It can also be used in a method for obtaining systemic circulation of a desired protein in a transgenic or chimeric
                                                     detecting presence of compound that binds to estrogen receptor or producing desired protein from host cell comprises nucleotide sequence
Isolated nucleic acid for assaying
                                                                                                                                                     encoding secretory signal sequence
                                                                                                                                                                                                                                                Claim 1; Page 36; 73pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
```

Gaps ; 0 Score 88; DB 21; Length 21; Pred. No. 3.4e-07; 0; Mismatches 1; Indels 91.7%; ilarity 95.2%; Conservative Query Match Best Local Similarity Matches 20; Conserv

~

RESULT

Y92780;

29-AUG-2000 (first entry)

Vtgss; vitellogenin; secretory signal sequence; gene expressio oestrogen receptor binding protein; systemic circulation; CAT Vtgss; vitellogenin;

1..21 /label-Peptide

'note= "CAT N-terminal"

11-MAY-2000.

LAM T J. LAMT/

g õ

Y92780 standard; Protein; 34

Z

Vtgss-CAT fusion protein (partial)

Location/Qualifiers Oreochromis aureus.
 Synthetic. Chimeric

secretory_signal_sequence "O. aureus" /note= 15..16 Cleavage-site Protein

WO200026366-A1

99WO-SG00108 29-OCT-1999;

98US-0106426. (UYSI-) UNIV SINGAPORE NAT 30-0CT-1998; 26-0CT-1999;

Ding JL, Tan NS,

WPI; 2000-365615/31. N-PSDB; A28499.

detecting presence of compound that binds to estrogen receptor or producing desired protein from host cell comprises nucleotide sequence encoding secretory signal sequence for heterologous gene expression, Isolated nucleic acid for assaying

Example 2; Fig 5B; 73pp; English.

construct insert. Vigas and variants that comprise conservative replacements that retain the biological activities of directing secretion of a fusion protein from a cell and cleavage of the secretory signal sequence from the fusion protein are new DNA encoding the Vigas can be fused to either a reporter protein or a lipopolysaccharide-bluding protein coding sequence. The isolated nucleic acid is useful for assaying for heterologous gene expression, detecting the presence of a compound that binds to an oestrogen receptor in a sample or producing a desired protein from a host cell. It can also be used in a method for obtaining systemic circulation of a desired protein in a transqueic or chimeric A reporter CAT system that uses the piscine, Oreochromis aureus, vitellogenin secretory sequence (Vtgss), designated psp-VtgCAT was constructed. A28499 and A28722 comprise the 5'- and 3'-ends of the

34 AA; Sequence

Gaps ; Score 88; DB 21; Length 34; Pred. No. 5.8e-07; 0; Mismatches 1; Indels ö Ouery Match 91.7%; Best Local Similarity 95.2%; Matches 20; Conservative (

ö

1 mrvlvlalavalavgdqsnlg 21 1 MRVLVLALAVALAVGDGSNLG

g

21

RESULT

rg2782 standard; Protein; 38 Y92782;

Ź

(first entry) 29-AUG-2000

Vtgss-EGFP fusion protein (partial).

Vtgss; vitellogenin; secretory signal sequence; gene expression oestrogen receptor binding protein; systemic circulation; EGFP.

Chimeric - Oreochromis aureus Chimeric - Synthetic.

Location/Qualifiers 1..21 /label- Vtgss. 15..16 28..38 /label- EGFP Cleavage-site Protein Peptide

WO200026366-A1 11-MAY-2000.

98US-0106426. SINGAPORE NAT (UYSI-) UNIV SIN (LAMT/) LAM T J. 30-OCT-1998; 26-OCT-1999;

99WO-SG00108

29-OCT-1999;

Ding JL, Tan NS, Ho

WPI; 2000-365615/31

```
(UYSI-) UNIV SINGAPORE NAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    30-OCT-1998;
26-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11-MAY-2000.
                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Y92783;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            r92783
  qq
                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                    A reporter GFP system that uses the piscine, Oreochromis aureus, vitellogenin secretory sequence (Vtgss), designated pVtgEGFP was constructed. Vtgss and variants that comprise conservative replacements that retain the biological activities of directing secretion of a fusion protein from a cell and cleavage of the secretory signal sequence from the fusion protein, are new. DNA encoding the Vtgss can be fused to either a reporter protein or a lipopolysaccharide-binding protein coding sequence. The isolated nucleic acid is useful for assaying for heterologous gene expression, detecting the presence of a compound that binds to an osstrogen receptor in a sample or producing a desired protein from a host cell. It can also be used in a method for obtaining systemic circulation of a desired protein in a transgenic or chimeric
                                                                                                                                                                                                                                                                                                                                              ó
                    Isolated nucleic acid for assaying for heterologous gene expression, detecting presence of compound that binds to estrogen receptor or producing desired protein from host cell comprises nucleotide sequence encoding secretory signal sequence
                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Vtgss; vitellogenin; secretory signal sequence; gene expression; oestrogen receptor binding protein; systemic circulation; factor C.
                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                      Length 38;
                                                                                                                                                                                                                                                                                                                  Score 88; DB 21; Length 38
Pred. No. 6.5e-07;
); Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        22..51
/label= LPS-binding_domain
/note= "from C. rotundicauda Factor C"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1..21
/labbl= secretory_signal_sequence
/note= "from O. aureus"
15..16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Chimeric - Oreochromis aureus.
Chimeric - Carcinoscorpius rotundicauda.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                 Example 3; Fig 8B; 73pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Y92779 standard; Protein; 51 AA
                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                ch 91.7%;
1 Similarity 95.2%;
20; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Vtgss-CrFCES fusion protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98US-0106426.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99WO-SG00108
                                                                                                                                                                                                                                                                                                                                                                   1 MRVLVLALAVALAVGDGSNLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SINGAPORE NAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29-AUG-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ho B;
                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 20; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tan NS,
                                                                                                                                                                                                                                                                               38 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LAM T J
N-PSDB; A28502.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO200026366-A1
                                                                                                                                                                                                                                                          host organism.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Cleavage-site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (UYSI-) UNIV
(LAMT/) LAM 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       29-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                30-OCT-1998;
26-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11-MAY-2000
                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ding JL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Domain
                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
Y92779
                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
```

```
The piscine, Oreochromis aureus, vitellogenin secretory sequence (Vtgss)
was fused upstream to the EcoRI-Sall cDNA fragment encoding the
lipopolysaccharide-binding domain of Carcinoscorpius rotundicauda Factor
C CrFCES for expression and secretion of recombinant ES protein from
Drosophila cells. Vtgss and variants that comprise conservative
replacements that retain the biological activities of directing secretion
of a fusion protein from a cell and claevage of the secretory signal
sequence from the fusion protein, are new. DNA encoding the Vtgss can be
fused to either a reporter protein or a lipopolysaccharide-binding
for the terologous gene expression, detecting the presence of a compound
that binds to an oestrogen receptor in a sample or producing a desired
protein from a host cell. It can also be used in a method for obtaining
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                    Isolated nucleic acid for assaying for heterologous gene expression, detecting presence of compound that binds to estrogen receptor or producing desired protein from host cell comprises nucleotide sequence encoding secretory signal sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene expression;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 88; DB 21; Length 51;
Pred. No. 9e-07;
); Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    oestrogen receptor binding protein; systemic circulation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note= "beta-lactamase mature protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     secretory signal sequence;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Vtgss-beta-lactamase fusion protein (partial).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                               Example 1; Fig 2A; 73pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Y92783 standard; Protein; 51 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Chimeric - Oreochromis aureus. Chimeric - Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1..21
/label= Vtgss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 mrvlvlalavalavgdqsnlg 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MRVLVLALAVALAVGDGSNLG 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       91.7%;
95.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98US-0106426.
99US-0426776.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99WO-SG00108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          29-AUG-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity 95.2
Matches 20; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Vtgss; vitellogenin;
WPI; 2000-365615/31.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   51 AA;
                                  N-PSDB; A28496.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                beta-lactamase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO200026366-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cleavage-site
Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       host organism
```

```
99US-0144333.
99US-0144334.
99US-0144335.
                                                                                                                                                                                           99US-0134219
                                                                                                                                                                                                                                     99US-0134768
                                                                                                                                                                                                                                                                                                  99US-0135629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0142055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99US-0144085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99US-0144325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99US-0142803
                                                                                                                                  99US-0132487
                                                                                                                                                                                                                                                      99US-0134941
                                                                                                                                                                                                                                                                                 99US-0135353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99US-0140991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99US-0143624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99US-014297
                                                                                                                                                                99US-0134
                                         28-APR-1999;
30-APR-1999;
30-APR-1999;
04-MAY-1999;
                                                                                                    05-MAY-1999;
06-MAY-1999;
06-MAY-1999;
                              23-APR-1999
                                                                                                                                                07-MAY-1999
                                                                                                                                                            11-MAY-1999
                                                                                                                                                                            4-MAY-1999
                                                                                                                                                                                           14-MAY-1999
                                                                                                                                                                                                           14-MAY-1999
                                                                                                                                                                                                                       14-MAY-1999
                                                                                                                                                                                                                                      18-MAY-1999
                                                                                                                                                                                                                                                    19-MAY-1999
                                                                                                                                                                                                                                                                    20-MAY-1999
                                                                                                                                                                                                                                                                                 21-MAY-1999
                                                                                                                                                                                                                                                                                               24-MAY-1999
                                                                                                                                                                                                                                                                                                                            MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  22-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29-JUN-1999
30-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                              14-JUN-1
                                                                                                                                                                                                   A reporter beta-lactamase system that uses the Oreochromis aureus, vitellogenin secretory sequence (Vtgss), designated pBADVtgblactKana was constructed. Vtgss and variants that comprise conservative replacements that retain the blological activities of directing secretion of a fusion protein from a cell and cleavage of the secretory signal sequence from the fusion protein, are new. DNA encoding the Vtgss can be fused to either a reporter protein or a lipopolysaccharide-binding protein coding sequence. The lasolated nucleic acid is useful for assaying for heterologous gene expression, detecting the presence of a compound that binds to an oestrogen receptor in a sample or producing a desired protein from a host cell. It can also be used in a method for obtaining systemic circulation of a desired protein in a transgenic or chimeric
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter; termination sequence.
                                                                                                  Isolated nucleic acid for assaying for heterologous gene expression, detecting presence of compound that binds to estrogen receptor or producing desired protein from host cell comprises nucleotide sequence encoding secretory signal sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                           91.7%; Score 88; DB 21; Length 51; ilarity 95.2%; Pred. No. 9e-07; Conservative 0; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Arabidopsis thaliana protein fragment SEQ ID NO: 5552.
                                                                                                                                                                          Example 6; Fig 14A; 73pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        G08i34 standard; Protein; 313 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MRVLVLALAVALAVGDGSNLG 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   990S-0121825.
990S-0123180.
990S-0123548.
990S-0125788.
990S-0126264.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          990S-0127462.
990S-0128234.
990S-0128714.
990S-0129845.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25-FEB-2000; 2000EP-0301439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17-OCT-2000 (first entry)
                             Ho B;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Arabidopsis thallana
                                                       WPI; 2000-365615/31.
N-PSDB; A28507.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
Matches 20; Conserv
                           Tan NS,
                                                                                                                                                                                                                                                                                                                                                                                                                 51 AA;
(LAMT/) LAM T J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EP1033405-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           36-SEP-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  23-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 09-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -MAR-1999
                             Ding JL,
                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      G08134;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           608134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
ò
```

```
Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter; termination sequence.
                                                                                                                                                                                                                            46.9%; Score 45; DB 21; Length 313; 56.2%; Pred. No. 25;
                                                                                                                                                                                                                                                                                                                                                                                                        Arabidopsis thaliana protein fragment SEQ ID NO: 14907.
                                                                                                                                                                                                                                                  4; Mismatches
                                                                                                                                                                                                                                                                                                                                              G14879 standard; Protein; 313 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     990S-0121825.
990S-0123180.
990S-0123548.
990S-0125788.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99US-0129845.
99US-0130077.
99US-0130449.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  25-FEB-2000; 2000EP-0301439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99US-0128234
99US-0128714
99US-0159638
                             99US-0160767
99US-0160768
                                                                                                                                                                                     99US-0161992
99US-0161993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99US-0126785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99US-0127462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99US-0130510
                                                  99US-0160770
                                                                                                   99US-0160989
                                                                                                                                    99US-0161406
                                                                                                                                             99US-0161359
                                                                                                                                                        99US-0161360
                                                                                                                                                                 99US-0161361
99US-0161920
                                                                                                                                                                                                          99US-0162142
                                                                                           99US-0160981
                                                                                                                                                                                                                                                                                                                                                                                     17-OCT-2000 (first entry)
                                                                                                                                                                                                                                                                                  Best Local Similarity 56.2
Matches 9; Conservative
                                                                                                                                                                                                                                                                      4 LVLALAVALAVGDGSN 19
                                                                                                               99us-01
                                                                                                                         99US-01
                                                             99US-01
                                                                        99US-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EP1033405-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         23-APR-1999;
28-APR-1999;
30-APR-1999;
30-APR-1999;
04-MAY-1999;
                                                                    21.0CT-1999;
22.0CT-1999;
22.0CT-1999;
25.0CT-1999;
25.0CT-1999;
26.0CT-1999;
26.0CT-1999;
26.0CT-1999;
28.0CT-1999;
28.0CT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-APR-1999;
06-APR-1999;
08-APR-1999;
16-APR-1999;
19-APR-1999;
                   21-0CT-1999;
21-0CT-1999;
21-0CT-1999;
21-0CT-1999;
21-0CT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25-MAR-1999;
29-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               06-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      25-FEB-1999;
05-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          09-MAR-1999
23-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     21-APR-1999
23-APR-1999
                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                 G14879;
                                                                                                                                                                                                                                                                                                                         RESULT
G14879
                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              990S-0155659.
990S-0156458.
990S-0156596.
990S-0157117.
         9903-0144814.
9903-0145086.
9903-0145088.
9903-0145085.
9903-0145087.
                                                                                99US-0145145.
99US-0145218.
99US-0145224.
                                                                                                             990S-0145276.
990S-0145913.
990S-0145918.
990S-0145919.
990S-0146388.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99US-0151930
99US-0152363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9US-0153758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99US-0153070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99US-0157865
99US-0158029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       990S-0159329
990S-0159330
                                                                                                                                                                                                                                                                                                                                                                                                                                                             99US-0151066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99US-0151438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        90S-0154039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99US-0151080
 99US-0144884
                                                                                                                                                                                                99US-0147038
99US-0147204
                                                                                                                                                                                                                     99US-0147302
                                                                                                                                                                                                                                                                        90S-0147493
                                                                                                                                                                                                                                                                                                                                                                             9US-0149723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99US-015130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99US-015775
                                                                      99US-0145192
                                                                                                                                                                                      99US-014638
                                                                                                                                                                                                                                                                                   90S-014793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9US-015477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      90S-015823
                                                                                                                                                                             -AUG-1999
                                                                                                                                                                                                                                                                                                                                                                  AUG-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                            -AUG-1
                                                                                                                                                                                                                                          AUG-1
                                                                                                                                                                                                                                                   AUG-1
                                                                                                                                                                                                                                                                                                                                                                                                                      -AUG-1
                                                                                                                                                                                                                                                                                                                                                                                                                                         6-AUG-1
                                                                                                                                                                                                                               05-AUG-1
                                                                                                                                                                                                                                                                        09-AUG-1
```

Gaps

	•				•
					•
•		•	•		
	•	·			
				•	
•					
				· · · · · · · · · · · · · · · · · · ·	
185. 186. 187. 363.	256. 221. 221. 241. 241.	527.0.8.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2	50 23 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2 C O E 4 S E H C C 4 S O E O	7440886888888888888888888888888888888888
5555		00000000000000000000000000000000000000	444444444	98888888888888888888888888888888888888	600000mmmmmmmmmmm
13 13 13	11342	1355 1355 1355 1355 1375 1375 1388 1388 1394 1394	139946 13994 13994 13994 13994 13994 13994	13981 13981 13981 13981 14035 14035 14082 114184 114184 114205 114205 114205	1142977. 1143547. 1144085. 1144086. 1144087. 1144333. 1144333. 1144334. 1144334. 1144336. 1144336. 114436. 114436.
		00000000000000	000000000000	000000000000000	00000000000000000000
US-0] US-0] US-0] US-0]		0 - SD 0 - SD	0-sn 0-sn 0-sn 0-sn 0-sn 0-sn 0-sn	0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500	990S-01435 990S-01435 990S-01440 990S-01440 990S-01443 990S-01443 990S-01443 990S-01443 990S-01443 990S-01443 990S-01443
0-S066 0-S066 0-S066	0-8066 0-8066 0-8066 0-8066 0-8066	0 - SD66 0 - SD66	0-S166 0-S166 0-S166 0-S166 0-S166 0-S166 0-S166 0-S166 0-S166	0-SN66	- Sn66 - Sn66
099; 990S-01 999; 990S-01 999; 990S-01 099; 990S-01	999; 9998; 9	0.50066 (666	0-S166 (666 0-S166	0-S066 (666 0-S066 (666 0-S06	- SN66
099; 990S-01 999; 990S-01 999; 990S-01 099; 990S-01	999; 9998; 9	0.50066 (666	0-S166 (666 0-S166	0-S066 (666 0-S066 (666 0-S06	- SN66
MAY-1999; 99US-03 MAY-1999; 99US-03 MAY-1999; 99US-03 MAY-1999; 99US-03	MAY 1999; 990S-07 MAY 1999; 990S-07 MAY 1999; 990S-07 MAY 1999; 990S-07 MAY 1999; 990S-07 MAY 1999; 990S-07 MAY 1999; 990S-07	MAY 1999; 990S-05 MAY 1999; 990S-05 MAY 1999; 990S-07 JUN 1999; 990S-07	JUN-1999; 990S-0	JUN-1299; 990S-0 JUN-1999; 990S-0	JUL-1999; 99US-0
05-MAY-1999; 99US-0. 06-MAY-1999; 99US-0. 06-MAY-1999; 99US-0. 07-MAY-1999; 99US-0.	11-MAY-1999; 990S-07 14-MAY-1999; 990S-07 14-MAY-1999; 990S-07 14-MAY-1999; 990S-07 18-MAY-1999; 990S-07 19-MAY-1999; 990S-07 20-MAY-1999; 990S-07 21-MAY-1999; 990S-07	24 MAY 1999; 990S-0. 25 MAY 1999; 990S-0. 26 MAY 1999; 990S-0. 27 MAY 1999; 990S-0. 01 JUN 1999; 990S-0. 04 JUN 1999; 990S-0. 06 JUN 1999; 990S-0. 10 JUN 1999; 990S-0. 14 JUN 1999; 990S-0. 16 JUN 1999; 990S-0.	17-JUN-1999; 990S-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0	18-Jun-1999; 990S-0 22-Jun-1999; 990S-0 23-Jun-1999; 990S-0 23-Jun-1999; 990S-0 24-Jun-1999; 990S-0 24-Jun-1999; 990S-0 30-Jun-1999; 990S-0 01-Jul-1999; 990S-0 05-Jul-1999; 990S-0 05-Jul-1999; 990S-0 06-Jul-1999; 990S-0 06-Jul-1999; 990S-0 06-Jul-1999; 990S-0	12-70L-1999; 990S-0 13-30L-1999; 990S-0 15-30L-1999; 990S-0 16-30L-1999; 990S-0 19-30L-1999; 990S-0 19-30L-1999; 990S-0 19-30L-1999; 990S-0 19-30L-1999; 990S-0 19-30L-1999; 990S-0 20-30L-1999; 990S-0 20-30L-1999; 990S-0 21-30L-1999; 990S-0 21-30L-1999; 990S-0 21-30L-1999; 990S-0 21-30L-1999; 990S-0 21-30L-1999; 990S-0 21-30L-1999; 990S-0 21-30L-1999; 990S-0
05-MAY-1999; 99US-0. 06-MAY-1999; 99US-0. 06-MAY-1999; 99US-0. 07-MAY-1999; 99US-0.	11-MAY-1999; 990S-07 14-MAY-1999; 990S-07 14-MAY-1999; 990S-07 14-MAY-1999; 990S-07 18-MAY-1999; 990S-07 19-MAY-1999; 990S-07 20-MAY-1999; 990S-07 21-MAY-1999; 990S-07	24 MAY 1999; 990S-0. 25 MAY 1999; 990S-0. 26 MAY 1999; 990S-0. 27 MAY 1999; 990S-0. 01 JUN 1999; 990S-0. 04 JUN 1999; 990S-0. 06 JUN 1999; 990S-0. 10 JUN 1999; 990S-0. 14 JUN 1999; 990S-0. 16 JUN 1999; 990S-0.	17-JUN-1999; 990S-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0	18-Jun-1999; 990S-0 22-Jun-1999; 990S-0 23-Jun-1999; 990S-0 23-Jun-1999; 990S-0 24-Jun-1999; 990S-0 24-Jun-1999; 990S-0 30-Jun-1999; 990S-0 01-Jul-1999; 990S-0 05-Jul-1999; 990S-0 05-Jul-1999; 990S-0 06-Jul-1999; 990S-0 06-Jul-1999; 990S-0 06-Jul-1999; 990S-0	JUL-1999; 99US-0
05-MAY-1999; 99US-0. 06-MAY-1999; 99US-0. 06-MAY-1999; 99US-0. 07-MAY-1999; 99US-0.	11-MAY-1999; 990S-07 14-MAY-1999; 990S-07 14-MAY-1999; 990S-07 14-MAY-1999; 990S-07 18-MAY-1999; 990S-07 19-MAY-1999; 990S-07 20-MAY-1999; 990S-07 21-MAY-1999; 990S-07	24 MAY 1999; 990S-0. 25 MAY 1999; 990S-0. 26 MAY 1999; 990S-0. 27 MAY 1999; 990S-0. 01 JUN 1999; 990S-0. 04 JUN 1999; 990S-0. 06 JUN 1999; 990S-0. 10 JUN 1999; 990S-0. 14 JUN 1999; 990S-0. 16 JUN 1999; 990S-0.	17-JUN-1999; 990S-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0 18-JUN-1999; 99US-0	18-Jun-1999; 990S-0 22-Jun-1999; 990S-0 23-Jun-1999; 990S-0 23-Jun-1999; 990S-0 24-Jun-1999; 990S-0 24-Jun-1999; 990S-0 30-Jun-1999; 990S-0 01-Jul-1999; 990S-0 05-Jul-1999; 990S-0 05-Jul-1999; 990S-0 06-Jul-1999; 990S-0 06-Jul-1999; 990S-0 06-Jul-1999; 990S-0	12-70L-1999; 990S-0 13-30L-1999; 990S-0 15-30L-1999; 990S-0 16-30L-1999; 990S-0 19-30L-1999; 990S-0 19-30L-1999; 990S-0 19-30L-1999; 990S-0 19-30L-1999; 990S-0 19-30L-1999; 990S-0 20-30L-1999; 990S-0 20-30L-1999; 990S-0 21-30L-1999; 990S-0 21-30L-1999; 990S-0 21-30L-1999; 990S-0 21-30L-1999; 990S-0 21-30L-1999; 990S-0 21-30L-1999; 990S-0 21-30L-1999; 990S-0

9905-0145087. 9905-0145089. 9905-0145145. 9905-0145218. 9905-0145218. 9905-0145218. 9905-0145913. 9905-0145918. 9905-0145918. 9905-0145918. 9905-0147302. 9905-0147302. 9905-0147302. 9905-0147303. 9905-0147303. 9905-0147303. 9905-0147303. 9905-0147303. 9905-0147303. 9905-0147303. 9905-0147303. 9905-0147303. 9905-0149175. 9905-0149368. 9905-0149368.	0.00 - 0.151066 0.00 - 0.151030 0.00 - 0.151030 0.00 - 0.152363 0.00 - 0.152363 0.00 - 0.152363 0.00 - 0.152363 0.00 - 0.154018 0.00 - 0.154018 0.00 - 0.154018 0.00 - 0.154018 0.00 - 0.154018 0.00 - 0.155136 0.00 - 0.155136 0.00 - 0.155136 0.00 - 0.155136 0.00 - 0.155136 0.00 - 0.155136 0.00 - 0.15626 0.00 - 0.156
22-JUL-1999; 22-JUL-1999; 23-JUL-1999; 23-JUL-1999; 23-JUL-1999; 27-JUL-1999; 27-JUL-1999; 27-JUL-1999; 27-JUL-1999; 27-JUL-1999; 02-AUG-1999; 03-AUG-1999; 04-AUG-1999; 06-AUG-1999; 06-AUG-1999; 06-AUG-1999; 113-AUG-1999; 113-AUG-1999; 113-AUG-1999; 113-AUG-1999; 113-AUG-1999; 113-AUG-1999; 113-AUG-1999; 12-AUG-1999; 12-AUG-1999; 20-AUG-1999; 20-AUG-1999; 20-AUG-1999; 21-AUG-1999; 21-AUG-1999; 22-AUG-1999; 23-AUG-1999; 23-AUG-1999; 23-AUG-1999; 25-AUG-1999;	AUG - 1999 AUG - 1999 AUG - 1999 SEP - 1999 CCT - 1999
\$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$	2

```
99US-0136782.
99US-0137222.
99US-0137528.
                           990S-0134941.
990S-0135124.
990S-0135353.
990S-0135629.
                                                                                                                                                                                                                                    99US-0139456
                                                                                                                                                                                                                                                        99US-0139458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99US-0145086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99US-0145088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-0145085
                                                                                                                                                      99US-0138540
                                                                                                                                                                        99US-0139119
                                                                                                                                                                                    99US-0139452
                                                                                                                                                                                                        990S-0139492
                                                                                                                                                                                                                           99US-0139455
                                                                                                                                                                                                                                                                            9US-0139460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99US-0144332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99US-0144884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99US-0145087
                                                                                                                      99US-0137502
                                                                                                                                  99US-0137724
                                                                                                                                                                99US-0138847
                                                                                                                                                                                             99US-0139453
                                                                                                                                                                                                                 99US-0139454
                                                                              99US-0136392
                                                                                                                                            99US-0138094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99US-014527
                                                                                                                                                                                                                                                                                        9US-0139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99US-0144
                                                                                                                                                                                                                                                                                                                                                                                 19US-01
                                                                                                                                                                                                                                                                                                                                                                                                                        90S-01
                                                                                                                                                                                                                                                                                                                                                                                                                                           19US-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0-S066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19-JUL-1999;
19-JUL-1999;
19-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        23-JUL-1999;
23-JUL-1999;
26-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21-JUL-1999
21-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      22-JUL-1999
22-JUL-1999
                                                                                                                                                                                                                           8-JUN-1999
                                                                                                                                                                                                        -JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6-JUL-1
                                                                                                                                                                                                                                                                                                                       8-JUN-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9-JUL-
                                                                                                                                                                                                                                                                                                                                                                      Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter; termination sequence.
                                                                                                                                                                                               Gaps
                                                                                                                                                                        Score 45; DB 21; Length 313;
Pred. No. 25;
4; Mismatches 3; Indels
                                                                                                                                                                                                                                                                                                                                                  Arabidopsis thaliana protein fragment SEQ ID NO: 62272.
                                                                                                                                                                                                                                                                                        G49241 standard; Protein; 313 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            990S-0121825.
990S-0123180.
990S-0123548.
990S-0125788.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99US-0126785.
99US-0127462.
99US-0128234.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99US-0132863:
99US-0134256.
99US-0134218.
99US-0134219.
990S-0160770.
99US-0160814.
99US-0160816.
99US-0160980.
99US-0160981.
99US-0161404.
99US-0161405.
99US-0161360.
99US-0161360.
99US-0161360.
99US-0161360.
                                                                                                                                                                          46.9%;
56.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25-FEB-2000; 2000EP-0301439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-0128714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99US-0129845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99US-0130449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99US-0130510
99US-0130891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99US-0131449
99US-0132048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0130077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99US-0132407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         39US-0132484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   90S-0132485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99US-0132486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99US-0132487
                                                                                                                                                                                                                                                                                                                               18-OCT-2000 (first entry)
                                                                                                                                                                                                                             |:: || |:||:|||
133 llimaavllsvgegsn 148
                                                                                                                                                                                               9; Conservative
                                                                                                                                                                                                                   4 LVLALAVALAVGDGSN 19
                                                                                                                                                                                                                                                                                                                                                                                                                Arabidopsis thaliana
                                                                                                                                                                                     Local Similarity
                                       22-0CT-1999;
22-0CT-1999;
25-0CT-1999;
25-0CT-1999;
26-0CT-1999;
26-0CT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                   EP1033405-A2
                                                                                                              26-0CT-1999;
28-0CT-1999;
28-0CT-1999;
28-0CT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25-FEB-1999;
35-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       06-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      06-APR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -APR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -APR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -APR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            06-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6-APR-1999
                                                                                                                                                      29-OCT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         04-MAY-1999
                               -OCT-1999
                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                            G49241;
                                                                                                                                                                                      Best Loca
Matches
                                                                                                                                                                                                                                                                     RESULT
G49241
                                                                                                                                                                                                                                                                                                     g
  ò
```

```
99US-0145913.
99US-0145918.
99US-0145919.
99US-0145951.
                                            99US-0146386.
99US-0146388.
99US-0146389.
                                                                                       99US-0147204.
99US-0147302.
99US-0147192.
                                                                                                                       99US-0147260.
99US-0147303.
99US-0147416.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99US-0158369
99US-0159293
                                                                              99US-0147038
                                                                                                                                                                                                                                                                                                                                                                                                     99US-0151930
99US-0152363
99US-0153070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-0158029
99US-0158232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             90S-0156596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              90S-015786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0159638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  90S-0156458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             90S-015933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   90S-015513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99US-015711
                                                                                                                                                                                                                                                                                                    99US-014990
99US-014993
                                                                                                                                                                                                                                                                                                                                                            901210-S166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99US-015548
99US-015565
                                                                                                                                                                                        99US-01483
                                                                                                                                                                                                                                                          99US-01494;
                                                                                                                                                                      990S-01479
                                                                                                                                                                                                                                                                                                                                       99US-01508
                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-01537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-01547
                                                                                                                                                                                                                                                                                                                            90S-01505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              90S-01595
                                                                                                                                                         90S-01474
                                                                                                                                                                                                                                     99US-01493
                                                                                                                                                                                                                                                                                99US-01497
                                                                                                                                                                                                                                                                                            99US-01499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-01577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         90S-01593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99US-01607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              90S-01607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        90S-0160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99US-0159
                                                                                                                                                                                                                                                                                                                                                                                                                                                 990S-015
                                                                                                                                                                                                                                                                                                                                                                                 990S-01
27-JUL-1999;
27-JUL-1999;
27-JUL-1999;
28-JUL-1999;
02-AUG-1999;
02-AUG-1999;
```

```
Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter; termination sequence.
                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                        Ouery Match 46.9%; Score 45; DB 21; Length 313; Best Local Similarity 56.2%; Pred. No. 25; Matches 9; Conservative 4; Mismatches 3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Arabidopsis thaliana protein fragment SEQ ID NO: 62279.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 G49246 standard; Protein; 313 AA
990S-0161405.
990S-0161406.
990S-0161369.
990S-0161360.
990S-0161360.
990S-0161992.
990S-0161993.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    990S-0121825.
990S-0123180.
990S-0123548.
990S-0125788.
990S-012664.
990S-0127462.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          990S-0128234.
990S-0128714.
990S-0129845.
990S-0130449.
990S-0130891.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99US-0131449.
99US-0132048.
99US-0132407.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0132863.
99US-0134256.
99US-0134218.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-0132486.
99US-0132486.
99US-0132487.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000EP-0301439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99US-0132484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                      |:: || |:||||
133 llimaavllsvgegsn 148
                                                                                                                                                                                                                                                                                                                                          4 LVLALAVALAVGDGSN 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Arabidopsis thaliana
25-0CT-1999;
26-0CT-1999;
26-0CT-1999;
26-0CT-1999;
28-0CT-1999;
28-0CT-1999;
29-0CT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EP1033405-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      25-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         06-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 G49246;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            25.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00  
27.00 
     ò
```

99US-0134219

99US-013422

99US-0135629 90S-013535

990S-0147302 990S-0147302 990S-0147303 990S-0147303 990S-0147493 990S-0148171 990S-0148319 990S-0148319 990S-0148319 990S-0148349 990S-0149368 990S-0149723 990S-0149723 990S-0149923

39US-014720

```
990S-0144331
990S-0144332
990S-0144333
990S-0144335
990S-0144335
990S-0144884
990S-0144884
990S-0145086
990S-0145086
990S-0145086
990S-0145086
990S-0145086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     990S-0145145.
990S-0145218.
990S-0145224.
990S-0136021.
990S-0136782.
990S-0137222.
990S-0137222.
990S-0137724.
990S-0137724.
990S-0138094.
990S-0138847.
990S-0139452.
990S-0139452.
990S-0139452.
990S-0139452.
990S-0139453.
990S-0139453.
990S-0139454.
990S-0139454.
990S-0139454.
990S-0139459.
990S-0139459.
990S-0139459.
990S-0139459.
990S-0139459.
                                                                                                                                                                                                                                                                                                                                                                                                                                 99US-0143542.
99US-0143624.
99US-0144005.
                                                                                                                                                                                                                                                                                                                                                          39US-0141842
                                                                                                                                                                                                                                                                                   99US-0139899
                                                                                                                                                                                                                                                                                                                                                                                        99US-0142390
                                                                                                                                                                                                                                                                                                                                                                                                             90S-0142920
                                                                                                                                                                                                                                                                                            99US-0140353
99US-0140354
                                                                                                                                                                                                                                                                                                                                                                    99US-0142154
99US-0142055
                                                                                                                                                                                                                                                                                                                                                                                                    9US-014280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        990S-0144
                                                                                                                                                                                                                                                                                                                 990S-01
                                                                                                                                                                                                                                                                                                                                     990S-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                90S-01
```

990S-0152363. 990S-0153070. 990S-0154018. 990S-0154039. 990S-0155139.

990S-0154039. 990S-0154779. 990S-0155139. 990S-0155659. 990S-015659.

990S-01571 990S-01577 990S-01578

990S-01580 990S-01582 990S-01583

99US-0159294. 99US-0159295. 99US-0159329.

990S-01593 990S-01593 990S-01596

99US-0159584. 99US-0160741. 99US-0160767.

-0CT-1

99US-0160981. 99US-0160989. 99US-0161404.

2-OCT-1999; 2-OCT-1999;

2-0CT-1 5-0CT-1 99US-016136 99US-016192 99US-016199

99US-01614 99US-01614 99US-01613 99US-01613

-0CI-:

99US-0151080. 99US-0151303. 99US-0151438. 99US-0151930.

> 30-AUG-1 31-AUG-1 01-SEP-1

0-SEP-

99US-0150566. 99US-0150884. 99US-0151065. 99US-0151066.

```
99US-0139455
                                                                                                                                   99US-0139456
                                                                                                                                                                            99US-0139459
                                                                                                                                                                                           99US-0139460
                                                                                                                                                99US-0139457
                                                                                                                                                                                                                       99US-0139462
                                                                                                                                                                                                                                   99US-0139463
                                                                                                                                                                                                                                                   90S-0139750
                                                                                                                                                                                                        99US-0139461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9US-0145913
                                                                                                                                                                                                                                                                            99US-0139817
                                                                                                                                                                                                                                                                                                         99US-0140353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9US-014435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99US-014741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9US-014433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99US-014508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9US-014508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             90S-01448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99US-014
                                                                                                                                                                                                                                                                                                                                                                 990S-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -AUG-1
                                                                                                                                                                                                                                                                                                               Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter; termination sequence.
                                                                         Gaps
                                                                        ö
                                          Score 45; DB 21; Length 313;
Pred. No. 25;
4; Mismatches 3; Indels
                                                                                                                                                                                                                                                                                     Arabidopsis thaliana protein fragment SEQ ID NO: 5551.
                                                                                                                                                                                                 G08133 standard; Protein; 325 AA
                                         Query Match
Best Local Similarity 56.2%;
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     990S-0123180.
990S-0123548.
990S-0125788.
990S-0126264.
99US-0161993
99US-0162142
                                                                                                                                                                                                                                                                                                                                                                                                                                                           25-FEB-2000; 2000EP-0301439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9US-0129845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9US-0130510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         90S-0131449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99US-0132484
99US-0132485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9US-0134218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  90S-0134219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          990S-0134768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             90S-0136021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9US-0127462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          90S-0130891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            90S-0132486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      90S-0134256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9US-0134221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        90S-0134941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99US-0135353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  90S-0135629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           90S-0136782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       90S-0137222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   990S-0137502
990S-0137724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9US-0128234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19US-0132407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9US-0132487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9US-0135124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9US-0128714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0130077
                                                                                                                                                                                                                                                      17-OCT-2000 (first entry)
                                                                                                                |:: || |:||:|||
133 llimaavllsvgegsn 148
                                                                                                 4 LVLALAVALAVGDGSN 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9US-0132
                                                                                                                                                                                                                                                                                                                                                                         Arabidopsis thaliana
28-OCT-1999;
29-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                     EP1033405-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                 06-SEP-2000
                                                                                                                                                                                                                             G08133;
                                                                                                                                                                      RESULT 10
G08133
 PR
PR
                                                                                                 ŏ
                                                                                                                           셤
```

```
Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter; termination sequence.
                                                                                                                                                                Arabidopsis thaliana protein fragment SEQ ID NO: 14906.
                                                                                      G14878 standard; Protein; 325 AA
                                                                                                                                                                                                                                                                                                                                              99US-0121825.
99US-0123180.
99US-0123548.
99US-0125788.
                                                                                                                                                                                                                                                                                                                     25-FEB-2000; 2000EP-0301439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                99US-0129845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99US-0132486
99US-0132487
                                                                                                                                                                                                                                                                                                                                                                                                              99US-0126785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99US-0131449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99US-0132485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99US-0132863
                                                                                                                                                                                                                                                                                                                                                                                                                           99US-0127462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99US-0132407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99US-0132484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-013422]
                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-0128234
                                                                                                                                       17-OCT-2000 (first entry)
4 LVLALAVALAVGDGSN 19
|:: || |:||:|||
|145 llimaavllsvyegsn 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99US-0134
                                                                                                                                                                                                                                            Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                             25-FEB-1999;
05-MAR-1999;
09-MAR-1999;
                                                                                                                                                                                                                                                                    EP1033405-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  24-MAY-1999;
25-MAY-1999;
                                                                                                                                                                                                                                                                                            06-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                     23-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                  25-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8-APR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      30-APR-1999
04-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 05-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         06-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     07-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             06-MAY-1
                                                                                                               G14878;
                                                              RESULT 11
G14878
                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 325;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          46.9%; Score 45; DB 21;
llarity 56.2%; Pred. No. 26;
Conservative 4; Mismatches 3.
                                                             99US-0148565.
99US-0148684.
99US-0149368.
                                                                                                                                                    99US-0149929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0162142
                                                                                                                                                                                                                                                                                 90S-0151930
                                                                                                                                                                                                                                                                                                                                  9US-0154018
                                                                                                                                                                                                                                                                                                                                                 90S-0154039
                                                                                                                                                                                                                                                                                                                                                             9US-0154779
                                                                                                                           99US-0149722
99US-0149723
                                                                                                                                                                                                                                                                                             99US-0152363
                                                                                                                                                                                                                                                                                                                                                                                      90S-0155486
                                                                                                                                                                             9US-0149930
                                                                                                    90S-014917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 903-01608
                                                                                                                                                                                                                                                                                                                                                                                                                                                    9US-01577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 9; Conserv
                                  11-AGG-1999;
12-AGG-1999;
13-AGG-1999;
13-AGG-1999;
16-AGG-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     28-0CT-1999;
29-0CT-1999;
                                                                                                                                                                                                                                     27-AUG-1'
30-AUG-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -AUG-1
                                                                                                                                                    -AUG-1
                                                                                                                                                                                                                 -AUG-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -0CT-1
                                                                                                                                                                                                                                                                                  -SEP-
                                                                                                                                                                                                                                                                                                                       SEP-
```

99US-0139453

ö

Gaps

0;

Indels

7 10:35:59 2001

Mon May

990S-0139457 990S-0139458 990S-0139459 990S-0139461 990S-0139461 990S-0139462 990S-0139462 990S-0139750

99US-0142920

90S-0144085

9US-014408

99US-0146386

90S-0145088

90S-014508

JUS-0144352

903-0145089

90S-0147260

99US-0148569 99US-014868

Gaps

ö

Length 325; Indels Score 45; DB 21; Pred. No. 26; 4; Mismatches 3 Query Match
Best Local Similarity 56.2%;
Matches 9; Conservative 990S-0160770. 990S-0160814. 990S-0160815. 990S-0160980. 990S-0160981. 99US-0159584. 99US-0160741. 99US-0160767. 4 LVLALAVALAVGDGSN 19 |:: || |:||:|| |15 llimaavllsvgegsn 160 99US-0159 99US-015 ò g

```
990S-0139463.
990S-0139463.
990S-0139750.
990S-0139817.
990S-0139899.
                                                                                                    990S-0140354.
990S-0140695.
990S-0140823.
990S-0141287.
990S-0141842.
                                                                                                                                                                                             99US-0142055.
99US-0142390.
99US-0142803.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-0149723
99US-0149929
99US-0149902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99US-0145918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99US-0145919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99US-0147303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0148319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99US-0148565
                                                                                                                                                                                                                                                                                         99US-0144005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99US-0146386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99US-014936
                                                                                                                                                                                                                                                            99US-0143542
99US-0143624
                                                                                                                                                                                                                                                                                                                                                         99US-0144332
                                                                                                                                                                                                                                                                                                                              99US-0144325
                                                                                                                                                                                                                                                                                                                                                                    99US-0144333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99US-014595
                                                                                                                                                                                                                                                                                                                                            99US-014433]
                                                                                                                                                                                                                                                                                                                                                                                                                                                 99US-014481
                                                                                                                                                                                                                                                                                                      99US-014408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                39US-014527
                                                                                                                                                                                                                                     99US-01429
                                                                                                                                                                                                                                                99US-01429
                                                                                                                                                                                 99US-0142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-0145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99US-0145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99US-0147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           90S-0147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99US-014
                                                                                                                                                                                                                                                                                                                 99US-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99US-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99us-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99us-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99us-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12-AUG-1999;
13-AUG-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .3-AUG-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6-AUG-1999
                                                                                                     Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter; termination sequence.
                                                                             Arabidopsis thaliana protein fragment SEQ ID NO: 62271
G49240 standard; Protein; 325 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             990S-0136782.
990S-0137222.
990S-0137528.
990S-0137502.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-0139458.
99US-0139459.
99US-0139460.
                                                                                                                                                                                                                                                            99US-0121825.
99US-0123180.
99US-0123548.
99US-0125788.
                                                                                                                                                                                                                                                                                                                990S-0126264.
990S-0126785.
990S-0127462.
                                                                                                                                                                                                                                     2000EP-0301439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                90S-0132048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0132486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9US-0134219
                                                                                                                                                                                                                                                                                                                                                                                  99US-0129845
                                                                                                                                                                                                                                                                                                                                                                                                                                                   9US-0131449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     90S-0132485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        90S-0134256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99US-0134218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           90S-0134370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9US-0134768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           90S-0135629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       90S-0138847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                90S-0139452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9US-0139492
                                                                                                                                                                                                                                                                                                                                                        99US-0128234
99US-0128714
                                                                                                                                                                                                                                                                                                                                                                                                             90S-0130449
                                                                                                                                                                                                                                                                                                                                                                                                                          90S-013051C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99US-0132407
99US-0132484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99US-0132863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      90S-013602]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   90S-0136392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9US-0138094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-0132487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9US-013422
                                                                                                                                                                                                                                                                                                                                                                                                                                       90S-013089
                                                   (first entry)
                                                                                                                                                        Arabidopsis thaliana
                                                                                                                                                                                                                                    25-FEB-2000;
                                                                                                                                                                                 EP1033405-A2
                                                    18-OCT-2000
                                                                                                                                                                                                          06-SEP-2000
                           G49240;
```

```
Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter; termination sequence.
                                                                                                                                         99US-0121825.
99US-0123180.
99US-0123548.
99US-0125788.
                                                                                                                      2000EP-0301439
                                                                                                                                                                                                                                                              99US-0130449
                                                                                                                                                                                     99US-0126264
                                                                                                                                                                                                                    99US-0128234
                                                                                                                                                                                                                                                  99us-0130077
                                                                                                                                                                                                                                                                                                                                       990S-0132485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-0139452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99US-0139492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99US-0139458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99US-0139460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99US-0139462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99US-0139817
99US-0139899
                                                                                                                                                                                                                                                                                                                           99US-0132484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-0139461
                                                                                                                                                                                                                                                                                                                                                                                                   99US-0134
                                                                                                                                                                                                                                                                                                                                                                                                                                             99US-0134
                                                                                                                                                                                                                                                                                                                                                                                                              99US-0134
                                                       Arabidopsis thaliana
                                                                           EP1033405-A2
                                                                                                                     25-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18-JUN-1999;
21-JUN-1999;
22-JUN-1999;
                                                                                                06-SEP-2000
                                                                                                                                                                                   -MAR-1999
     ö.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 325;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 21;
26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Arabidopsis thaliana protein fragment SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 45; DB:
Pred. No. 26;
4; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           G49245 standard; Protein; 325 AA
990S-0149930.
99US-0150566.
99US-0150884.
99US-0151065.
99US-0151080.
99US-0151303.
99US-0151438.
                                                                                                                                                                      99US-0155486.
99US-0155659.
99US-0156458.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ouery Match
Best Local Similarity 56.2%;
Matches 9; Conservative
                                                                                              99US-0152363
99US-0153070
                                                                                                                   99US-0153758
                                                                                                                             99US-0154018
                                                                                                                                                  90S-0154779
                                                                                                                                                              99US-0155139
                                                                                                                                                                                                      99US-0156596
                                                                                                                                                                                                                                                                                                                                                                                                                                                               90S-0160989
                                                                                                                                                                                                                                                                                                                                              990S-015963
                                                                                                                                                                                                                 99US-015711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9US-016135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18-OCT-2000 (first entry)
                                                                                                                                                                                                                                       90S-01578
                                                                                                                                                                                                                                                                                                                                                                                                                                90S-01608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4 LVLALAVALAVGDGSN 19
|:: || |:||||
|15 llimaavllsvgegsn 160
                                                                                                                                                                                                                           90S-01577
                  26-AUG-1999;
27-AUG-1999;
27-AUG-1999;
27-AUG-1999;
30-AUG-1999;
31-AUG-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         28-OCT-1999
29-OCT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                G49245;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 13
G49245
ID G49245
XX
AC G49245
XX
XX
XX
DE Arabid
```

g à

```
99US-0151930.
99US-0152363.
99US-0153070.
                                    99US-0153758.
99US-0154018.
99US-0154039.
                                                              990S-0154779.
990S-0155139.
990S-0155486.
990S-0155659.
                                                                                                   99US-0156458.
99US-0156596.
99US-0157117.
99US-0157753.
                                                                                                                                         99US-0157865.
99US-0158029.
99US-0158232.
                                                                                                                                                                                       99US-0159294
99US-0159295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                              26-0CT-1999;
26-0CT-1999;
26-0CT-1999;
28-0CT-1999;
28-0CT-1999;
29-0CT-1999;
       01. SEP - 1999)

07. SEP - 1999)

10. SEP - 1999)

13. SEP - 1999)

15. SEP - 1999)

20. SEP - 1999)

21. SEP - 1999)

23. SEP - 1999)

24. SEP - 1999)
                                                                                                                                                                                                                                                                                                     21-OCT-1999;
21-OCT-1999;
22-OCT-1999;
22-OCT-1999;
22-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                  25-0CT-1999;
25-0CT-1999;
25-0CT-1999;
                                                                                                    28-SEP-1999
                                                                                                                       04-0CT-1999,
05-0CT-1999,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                G49244;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 14
G49244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9905-0149723.
9905-0149929.
9905-0149902.
9905-0150566.
9905-0150684.
9905-0151066.
9905-0151066.
990S-0140353.
990S-0140695.
990S-0140895.
990S-0140991.
990S-0141842.
990S-0142187.
990S-0142184.
990S-0142184.
990S-0142184.
                                                                                                                                                                                                                   99US-0144335.
99US-0144352.
99US-0144832.
99US-0144884.
99US-014814.
99US-0145088.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99US-0148341.
99US-0148565.
99US-0148684.
                                                                                                               99US-0142977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99US-0148319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               90S-0149368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99US-0149722
                                                                                                                                  90S-0143624
90S-0144005
                                                                                                                                                                                99US-014433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             990S-01474
990S-01479
990S-01481
                                                                                                                                                                                                                                                                                                                                                                                                                                                        990S-01471
990S-01472
990S-01473
                                                                                                                                                                                                                                                                                                                                                                                                                             99US-01477
99US-01477
99US-01477
                                                                                                                                                                                                                                                                                                                                                                                                  990S-014
                                                                                                                                                                                                                                                                                                                                                                                                                     39US-01
                                                                                                                                                                                                                                                                                                                                                                                          10-S06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .42-AUG-1995
13-AUG-1999;
3-AUG-197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -AUG-1
                             28-JUN-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -AUG-1
-AUG-1
                                                                                                                                                                                                                                       -JUL-1
-JUL-1
```

99US-0158369

99US-0159293

99US-0159329 99US-0159330

```
Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter; termination sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                             21; Length 325;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Arabidopsis thaliana protein fragment SEQ ID NO: 62277.
                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 45; DB 2
Pred. No. 26;
4; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                               DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     G49244 standard; Protein; 345 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                               46.9%;
56.2%;
                                      990S-0159638
99US-0159331
99US-0159637
                                                                                                               99US-0160768
                                                                                                                                99US-0160770
                                                         99US-0159584
                                                                          99US-0160741
                                                                                             99US-0160767
                                                                                                                                                                    99US-0160815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18-OCT-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |:: || |:||||
145 ||limaav||svgegsn 160
                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 46.9
Best Local Similarity 56.2
Matches 9; Conservative
                                                                                                                                                                                                       99US-01609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4 LVLALAVALAVGDGSN 19
                                                                                                                                                                                        99US-0160
```

ö

```
9905-0148319.
9905-0148565.
9905-0148684.
9905-0148765.
9905-0149175.
9905-0149722.
9905-0149723.
9905-0149723.
9905-0149930.
9905-0149930.
                                                                                                                                                                                                                                                                                                                                                                           99US-0151065.
99US-0151066.
99US-0151080.
99US-0142154.
99US-0142055.
99US-0142390.
99US-0142803.
                                                                                                                                                                                                                                                                                                                                                                                           990S-0151303
990S-0151303
990S-0151930
990S-0152363
990S-0153070
990S-0154018
990S-0154018
                        99US-0142920.
99US-0142977.
99US-0143542.
99US-0143624.
                                                99US-0144005.
99US-0144085.
99US-0144086.
99US-0144325.
                                                                                                                99US-0144884.
99US-0144814.
99US-0145086.
                                                                                                                                  990S-0145088
                                                                                                                                                    99US-0145089
                                                                                                                                                         99US-0145192
99US-0145145
                                                                                                                                                                     99US-0145218
                                                                                                                                                                                                  99US-0145919
                                                                                                                                         99US-0145085
                                                                                                                                                                                             99US-0145918
                                                                                                                                                                                                                           990S-0146389
                                                                             99US-0144332
                                                                                    99US-0144333
                                                                                                                                              99US-0145087
                                                                                                                                                                                                         99US-0145951
                                                                                                                                                                                                               99US-0146386
                                                                                                                                                                                                                     99US-0146386
                                                                                                                                                                                                                                            99US-014730
                                                                                                                                                                                                                                                                                     99US-014817
                                                                                                                                                                            99US-014522
                                                                                                                                                                                  99US-014527
                                                                                                                                                                                                                                                                    99US-01
                                                      16-JUL-1999;
16-JUL-1999;
19-JUL-1999;
                                                                            19-JUL-1999;
19-JUL-1999;
                                                                                                                20-JUL-1999;
21-JUL-1999;
21-JUL-1999;
21-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                           27-AUG-1999;
27-AUG-1999;
                                                                                                                                                                                                                                                                                                      1-AUG-1999;
                                                                                                                                                                                                                                                                                                                                   20-AUG-1999;
20-AUG-1999;
                                                                                                                                                                                                                                                                                                                                               20-AUG-1999;
23-AUG-1999;
                                                                                                                                                                                                                                                                                                                                                                                        27-AUG-1999;
30-AUG-1999;
                                                                                         9-JUL-1999,
                                                                                                9-JUL-1999
                                                                                                     20-JUL-1999;
                                                                                                                                                                                                                                                   05-AUG-1999
                                                                                                                                                                                                                                                             06-AUG-1999
06-AUG-1999
                                                                                                                                                                                                                                                                                                 2-AUG-1
                                                                                                                                                                                                                                                                                                                              AUG-1
 990S-0121825.
990S-012180.
990S-0123548.
990S-0125788.
990S-0126785.
990S-0127465.
990S-0127465.
990S-0128714.
                                                                                                                                                                                                                                      990S-0136392
990S-0136782
990S-0137528
990S-0137528
990S-0137724
990S-0138640
990S-0138847
990S-0139843
990S-0139452
                                                                                                                                                                                                                                                                                                                                                                      99US-0139463
99US-0139750
                                                                                                                                                                                                                                                                                                                                                                                                                           99US-0140991
99US-0141287
99US-0141842
                                                                                                                                                               990S-0132863
990S-0134218
990S-0134218
990S-0134219
990S-0134220
990S-0134220
990S-0134768
                                                                                                                                                                                                                                                                                                                                                                                              90S-0139899
                                                                                                                                                                                                                                                                                                                                                                                  99US-0139763
99US-0139817
                                                                                                                                              99US-0132485
99US-0132486
99US-0132487
                                                                                                                                                                                                                                                                                                                                                                                                    99US-0140353
                         2000EP-0301439
                                                                                                99US-0130077
99US-0130449
                                                                                                                                                                                                                      99US-0135353
99US-0135629
99US-0136021
                                                                                                                                                                                                                                                                                                                                                                                                          90S-014035
                                                                                                                       990S-0131449
990S-0132048
990S-0132407
                                                                                                           990S-013051
990S-013089
                                                                                                                                                                                                                                                                                                                             990S-01394
990S-01394
990S-01394
990S-01394
                                                                                                                                                                                                                                                                                                                                                          990S-01394
                                                                                                                                         990S-01324
                                                                                                                                                                                                                                                                                                                         90S-0139
                                                                                                                                                                                                                                                                                                                  9US-0139
                                                                                                                                                                                                                90S-0135
 EP1033405-A2
                        25-FEB-2000;
             06-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                   8-JUN-8
```

```
99US-0130077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    90S-0139
   .05-MAR-1999;
09-MAR-1999;
25-MAR-1999;
25-MAR-1999;
01-APR-1999;
06-APR-1999;
                                                                                                                            16-APR-1999;
19-APR-1999;
21-APR-1999;
                                                                                                                                                                                                                      30-APR-1999
                                                                                                                                                                                                                                                    04-MAY-1999
                                                                                                                                                                                                                                                                     05-MAY-1999
                                                                                                                                                                                                                                                                                   06-MAY-1999
                                                                                                                                                                                                                                                                                                                  07-MAY-1999
                                                                                                                                                                                                                                                                                                                               .1-MAY-1999
                                                                                                                                                                                                                                                                                                                                                14-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                               -MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                           21-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5-MAY-1999
                                                                                                                                                                                                                                                                                                06-MAY-
                                                                                                                                                                                                                                                                                                                                                               14 - MAY -
                                                                                                                                                                                                                                                                                                                                                                                             4 - MAY -
                                                                                                                                                                                                                                                                                                                                                                                                            8-MAY-
                                                                                                                                                                                                                                                                                                                                                                                                                            9-MAY-
                                                                                                                                                                                                                                                                                                                                                                                                                                         0-MAY-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           24 - MAY -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -MAY-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8-MAY-
      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter; termination sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 345;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Arabidopsis thaliana protein fragment SEQ ID NO: 5550.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 45; DB 21;
Pred. No. 27;
4; Mismatches 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             G08132 standard; Protein; 349 AA
99US-0154779.
99US-0155486.
99US-0155486.
99US-0156596.
99US-0156596.
99US-0156797.
99US-015696.
99US-015905.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity 56.2%;
Matches 9: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               25-FEB-2000; 2000EP-0301439.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99US-0121825
                                                                                                                                                                                                                                                                              19US-0159637
                                                                                                                                                                                                                                                                                                              9US-0159584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17-OCT-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |:: || |:||||
165 ||limaav||svgegsn 180
                                                                                                                                                                                                                                                                                                                                           9US-01607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4 LVLALAVALAVGDGSN 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                      90S-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EP1033405-A2
20-SEP-1999;
22-SEP-1999;
23-SEP-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25-FEB-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                06-SEP-2000.
                                                                                                                                                                                                                                                                                                                                          -OCT-1999
-OCT-1999
-OCT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                            22-0CT-15
25-0CT-19
25-0CT-19
25-0CT-199
76-0CT-1999
6-0CT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28-OCT-1999
29-OCT-1999
                                                             28 - SEP - II

29 - SEP - II

20 - SEP - II

21 - SEP - II

22 - SEP - II

23 - SEP - II

24 - SEP - II

26 - SEP - II

27 - SEP - II

28 - SEP - II

29 - SEP - II

20 - SEP - II

20 - SEP - II

21 - SEP - II

21 - SEP - II

22 - SEP - II

23 - SEP - II

24 - SEP - II

26 - SEP - II

27 - SEP - II

28 - SEP - II

29 - SEP - II

20 - SEP - II

20 - SEP - II

21 - S
                                                                                                                                                                                                                                                                                                                                                                                                       -0CT-1
                                                                                                                                                                                                                                                                                                                                                                                         -OCT-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            G08132;
```

g ö

```
PR 14-707-1999; 9908-0144005.
PR 16-707-1999; 9908-0144005.
PR 19-707-1999; 9908-0144005.
PR 19-707-1999; 9908-0144005.
PR 19-707-1999; 9908-0144006.
PR 19-707-1999; 9908-0144331.
PR 19-707-1999; 9908-0144331.
PR 20-707-1999; 9908-0144332.
PR 20-707-1999; 9908-0144332.
PR 21-707-1999; 9908-0144332.
PR 21-707-1999; 9908-014804.
PR 21-707-1999; 9908-014804.
PR 22-707-1999; 9908-014808.
PR 27-707-1999; 9908-014808.
PR 27-707-1999; 9908-014808.
PR 12-707-1999; 9908-014808.
PR 12-708-1999; 9908-014808.
PR 12-708-1999; 9908-014808.
PR 12-708-1999; 9908-014808.
PR 12-808-1999; 9908-015808.
PR 12-808-1999; 9908-015808.
PR 12-808-1999; 9908-015809.
PR 12-
```

Gaps

3, 2001, 15:52:21

Search completed: May Job time: 40 sec

ő Length 349; Indels Score 45; DB 21; Pred. No. 28; 4; Mismatches 3. 46.9%; 56.2%; 99US-0158029. 99US-0158232. 99US-0158369. 99US-0159329. 99US-0159330. 99US-0159331. 99US-0159637. 99US-0160815 99US-0160980 99US-0160741 99US-0160770 99US-0160814 99US-0160981 99US-0160989 4 LVLALAVALAVGDGSN 19 |:: || |:||:|| 169 llimaavllsvgegsn 184 Query Match 46.9
Best Local Similarity 56.2
Matches 9; Conservative 99US-0161 990S-01613 990S-01613 990S-01613 99US-0161 05-0CT-1999; 06-0CT-1999; 08-0CT-1999; 13-0CT-1999; 13-0CT-1999; 14-0CT-1999; 14-0CT-1999; 14-0CT-1999; 14-0CT-1999; 14-0CT-1999; 12-0CT-1999; 21-0CT-1999; 2-OCT-1999; 2-OCT-1999; 5-OCT-1999; ΩD ŏ

```
May 3, 2001, 15:51:41; Search time 11.61 Seconds (without alignments) 34.748 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                        185757
GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                        Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                   185757 seqs, 19210857 residues
                                                                                                                                                                                   US-09-426-776-10
96
1 MRVLVLALAVALAVGDGSNLG 21
                                                                        OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                       Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                                                                                                                                                                                                         Searched:
                                                                                                                  Run on:
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

Issued_Patents_AA:*

1. /cgn2_6/ptodata/2/iaa/5A_COMB.pep:*
2: /cgn2_6/ptodata/2/iaa/5B_COMB.pep:*
3: /cgn2_6/ptodata/2/iaa/6A_COMB.pep:*
4. /cgn2_6/ptodata/2/iaa/6A_COMB.pep:*
5: /cgn2_6/ptodata/2/iaa/PCTUS_COMB.pep:*
6: /cgn2_6/ptodata/2/iaa/PCTUS_COMB.pep:

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Database :

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

SUMMARIES

Description	Sequence 33, Appl	Sequence 2, Appli	Sequence 2, Appli	7	Sequence 2, Appli	Seguence 17, Appl	Sequence 75, Appl	Sequence 2, Appli	4	Sequence 2, Appli	Sequence 4, Appli	Sequence 12, Appl	Sequence 12, Appl	Sequence 12, Appl	Sequence 12, Appl	Sequence 8, Appli	Sequence 25, Appl	Sequence 2, Appli	Sequence 23, Appl	Sequence 27, Appl	Sequence 29, Appl	Sequence 14, Appl	Sequence 14, Appl	Sequence 2, Appli	Sequence 11, Appl	Sequence 4, Appli	Sequence 4, Appli
ID	US-08-250-740-33	US-07-695-472B-2	US-08-446-137B-2	US-08-391-743A-2	US-07-878-960-2	US-08-477-396A-17	US-09-120-365-75	US-08-676-166A-2	US-08-477-396A-4	US-09-040-738-2	US-08-738-172-4	US-08-484-493-12	US-08-484-494-12	US-08-345-212-12	US-09-249-003-12	US-08-445-586-8	US-09-124-671-25	US-08-384-367-2	US-09-124-671-23	US-09-124-671-27	US-09-124-671-29	US-08-095-726-14	US-08-096-623A-14	US-09-040-774-2	US-07-953-230A-11	US-08-948-997-4	US-09-348-817A-4
B	-	-	4	7	Н	N	٣	7	~	4	ď	Н	Н	~	4	٦	4	Н	4	4	4	Н	Н	4	٦	٣	4
% Query Match Length DB	629	629	1027	222	683	683	361	516	777	1784	455	507	507	507	507	509	90	100	109	109	109	374	374	1241	214	402	402
% Query Match	45.8	45.8	45.8	44.8	44.8	44.8	41.7	41.7	41.7	41.7	40.6	40.6	40.6	40.6	40.6	40.6	39.6	39.6	39.6	39.6	39.6	39.6	39.6	39.6	38.5	38.5	38.5
Score	44	44	44	43	43	43	40	4	40	40	39	39	39	39	39	39	38	38	38	38	38	38	38	38	37	37	37
Result No.	-	2	ı M	4	·	. 6	7	· 00	6	10	ΪĮ	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27

3 VLVLALAVALAVGD 16

> g δ

		6
Appl Appl Appl Appl Appl Appl Appl Appl		Gaps
119, 20, 20, 20, 11, 11, 11, 11, 11, 11,		
Sednence Sed		
sedn sedn sedn sedn sedn sedn sedn sedn	Diagnosi	629, els
		Length 62 ; Indels
	e and	7
AA-19 -19 -19 -20 -20 -18 -18 -36 -36 -36 -14 -5-14 -5-1	on #1.	DB 1; 5; les
US-08-406-855A-19 US-09-206-899-19 US-09-206-899-20 US-09-206-899-20 US-09-206-188-18 US-09-466-138-18 US-08-888-497-36 PCT-US94-077-14 PCT-US96-10986-14 US-08-222-619-5 US-08-243-542-1 US-08-243-542-2 US-08-243-542-2 US-08-243-542-2 US-08-243-542-2 US-08-243-542-2	ALIGNMENTS 18250740 ward H. tt J. Sphingomyelinase G lemann-Pick bisease lemann-Pick bisease the Americas the Americas the Americas (05/NS-DOS ease #1.0, Version (0742 (0742 (0742 (0742 (0743 (07	e 5
US-08-406-855A US-09-206-899- US-09-206-899- US-09-206-899- US-09-206-899- US-08-88-491- US-08-88-491- US-08-88-491- US-08-88-491- US-08-222-619- US-08-222-619- US-08-235-4075- US-08-235-407-	4	re 44; 3. No. Mismat
US-08- US	ALIGNN US/08250740 ToS/08250740 Robert J. Acid Sphingomye of Niemann-Pick S. S. E. Edmonds Le of the Americ Rompatible Processes #1.0, Arra. NR: Release #1.0, Arra. NR: Release #1.0, Arra. Processes #2.09 Release #2.09 Release #2.09 Release #2.09 Release #35 Release #2.09 Release #35 Release #35 Release #35 Release #35 Release #36 Release #1.00 Rele	Score Pred. 2; Mis
0.5 - 0.0 -	S/082507 Sy082507 Sy082507 Syndry Syn	 do do
9 E	US/0825 Robert J Robert J Robert J Soft Niema 36 Si Soft Lie Compatibl PO-TOS/N N Release DATA: NATION: NATION: UTA A. TYOU-9090 PORNMATION: UTA A. TYOU-9090 PORNMATION: UTA A. TYOU-9090 PORNMATION: UTA A. TYOU-9090 PORNMATION: UTA A. TICCS: ATICS: ACICS: ACICS	5.8%; 1.4%; .ve
5521 5521 5520 5520 633 633 644 647 647 647 647 647 647 647 648 647 647 647 647 647 647 647 647 647 647	nc nees: , in opposite the control of the control o	45. larity 71. Conservative
	Application 886240 RMATION: Schuchman, Desnick, R WUENTION: OSEQUENCES: ESCUENCES: ESCUE	ity ser
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	ypplicat. Soluching Soluching Desnicl WATION: Schuching Desnicl WYENTION SERVE ADD SER	lar Con
388 338 338 338 338 338 337 337 337 337	-33 -33 -33 -35 -3686240 -356M6240 -	-33 Similarity 0; Conser
33	740-33 33, Applico 5. 5686240 CANT: Desr CANT: Desr CANT: Desr OF INVENTI NO F INVENTI NO F SEQUEN SPONDENCE RESSEE: PEET: 1155 EET: 1155 ET: 10036 IUM TYPE: IB RATION NTR: USA NTRY: USA NTRY: USA III TYPE: IB III	740-3.
9 9	T 1.0.33  -250-740-33  -250-740-33  -250-740-33  MERAL INFORMATION: APPLICANT: Schuchman, APPLICANT: Schuchman, APPLICANT: Desnick, R TITLE OF INVENTION: A  TOWNER OF SEQUENCES: CORRESPONDENCE ADDRESSE  STREET: 1155 Avenue  CITT: New YORK  COUNTRY: USA  COUNTRY: USA  CONTUTER READABLE FORM MEDIUM TYPE: Floppy COMPUTER: BM PC CO OPERATING STEM: B A  COMPUTER: BM PC CO OPERATING STEM: A  TELEPHONE: A  TELEPHONE: A  TELEPHONE: A  TELEPHONE: (212) 76  TELEPHONE: (212) 86  TELEPHONE:	-250-740 ry Match t Local ches 1
222 222 222 223 243 243 243 243 243 243	S-GULT 1 S-GBG20 S-GQUENCE 33, Applica Patent No. 5686A0 GENERAL INFORMATION APPLICANT: Schuc APPLICANT: Desni TITLE OF INVENTION UNMBER OF SEQUENC CORRESPONDENCE AD ADDRESSE: Pen STREET: 1155 A CITY: New YOR STATE: New YOR COMPUTER: IBM OPERATINE ING COMPUTER: IBM OPERATINE PATE COMPUTER: PATE SOFTWARE PATE COMPUTER: PATE ATTORNEY/AGENT IN REFERENCE/DOCK TELEFONMUNICATION TO T	-08-250 Query M Best Lo Matches
	RESULT Solution Solut	-SD M
	· · · · · · · · · · · · · · · · · · ·	

```
NAME: Myers, Paul Louis
REGISTRATION NUMBER: 35,965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELECOMMUNICATION INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               i: 222 amino acids
amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
Matches 9; Conserva
                                                                                                                                                                                                                                                                                                                                                   amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Boston
                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-391-743A-2
                                                                                                                                                                                                                                                                                                                                                                                                           US-08-446-137B-2
                                                                                                                                                                                                                                                                                                                          LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CITY: E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Trowern, Angus R.
APPLICANT: Atkinson, Anthony
APPLICANT: Aurphy, Jonathan P.
APPLICANT: Laurence, Oliver S.
APPLICANT: Laurence, Oliver S.
TITLE OF INVENTION: IMMUNOGLOBULIN BINDING PROTEINS DERIVED
TITLE OF INVENTION: FROM L PROTEIN AND THEIR USES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                45.8%; Score 44; DB 1; Length 629; 71.4%; Pred. No. 35;
                                                                        APPLICANT: Schuchman, Edward H.
APPLICANT: Desnick, Robert J.
TITLE OF INVENTION: The Acid Sphingomyelinase Gene and
TITLE OF INVENTION: Diagnosis of Niemann-Pick Disease
NUMBER OF SEQUENCES: 36
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                         MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/695,472B
FILING DATE: 19910503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   E: SEED and BERRY LLP
6300 Columbia Center, 701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: MISTOCK, S. LESLIE
REGISTRATION NUMBER: 18,872
REFERNICE/DOCKET NUMBER: 6923-014
TELECOMUNICATION INFORMATION:
TELEFAX: (212) 790-9090
TELEFAX: (212) 790-864/9741
TELEFAX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                               ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
                  Sequence 2, Application US/07695472B Patent No. 5773278 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 2, Application US/08446137B Patent No. 6162903 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         629 amino acids
AMINO ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQUENCES: 12
CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                              COUNTRY: U.S.A.
ZIP: 10036
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3 VLVLALAVALAVGD 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                 STATE: New York
COUNTRY: U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CITY: Seattle
                                                                                                                                                                                                                                           New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STATE: Wa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-07-695-472B-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-446-137B-2
07-695-472B-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
```

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 2, Application US/08391743A
Patent No. 5843705
CENERAL INFORMATION:
CENERAL INFORMATION:
APPLICANT: DiTULLIO, Paul A.: Meade, Harry; Cole, Edward S.
TITLE OF INVENTION: TRANSGENETICALLY PRODUCED ANTITHROMBIN III
CORRESPONDENCES: 2
CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE 6. COCKFIELD, LLP
STREET: 28 State Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 4; Length 1027;
                                                                                                                                                                              SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/446,137B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ZIP: 02109
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1:25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/391,743A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No. 61;
5; Mismatches
                                                                                                                                                                                                                                                                                            CLASSILLON DATA ON DAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    45.8%; Score 44; 50.0%; Pred. No.
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Myers, Paul Louis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1027 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2 RVLVLALAVALAVGDGSN 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ::|: ||| |: || |:|
41 KLLMAALAGAIVVGGGAN 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 21-FEB-1
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STATE: Massachusetts
COUNTRY: USA
```

5 VRLLALALALALGPAATL 22

셤

ð g

```
APPLICANT: Chen, Lan Bo
APPLICANT: Bao, Shideng
APPLICANT: Liu, Yuan
TITLE OF INVENTION: ISOLATING SAME
NUMBER OF SEQUENCES: 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 683;
                                                                                                                                                                                                                                                                                                 E: Weingarten, Schurgin, Gagnebin & Hayes
Ten Post Office Square
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/477,396A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  44.8%; Score 43; DB 2; 55.6%; Pred. No. 55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/146,488
FILING DATE: 29-0CT-1993
APPLICATION NUMBER: US 08/448,388
FILING DATE: 28-MAY-1996
PRIOR APPLICATION NUMBER: PCT/US94/12502
FILING DATE: 31-0CT-1994
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME: Heine, Holliday C.
REGISTRATION NUMBER: 34,346
REFERENCE/DOCKET NUMBER: DFCI-333BX
                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                  Sequence 17, Application US/08477396A Patent No. 5872235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 75, Application US/09120365
Patent No. 6103514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELECOMMUNICATION INFORMATION TELEPHONE: (617) 542-2290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEPHONE: (617) 542-2290
TELEFAX: (617) 451-0313
INFORMATION FOR SEQ ID NO: 17:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3 VLVLALAVALAVGDGSNL 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | :||||:|||:|
VRLLALALALALGPAATL 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  l: 683 amino acids
amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MOLECULE TYPE: protein HYPOTHETICAL: NO
                                                                                                                                                                                                                                                                             CORRESPONDENCE ADDRESS:
ADDRESSEE: Weingarte
STREET: Ten Post Off
                                                                                                                                                                                                                                                                                                                                                           Massachusetts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
APPLICANT: Natori, Shunji
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                               USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    잁
                                                                                                                                                                                                                                                                                                                                        Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FRAGMENT TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                 02109
                                                                 RESULT 6
JS-08-477-396A-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JS-09-120-365-75
                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                                                                                                                                                                                                                                                                             STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QΩ
                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                            Gaps
                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                  Length 222;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 683;
                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
APPLICANT: Purchio, Anthony F.
APPLICANT: Skonier, John
APPLICANT: Neubauer, Michael G.
TITLE OF INVERTION: TGF-BETA INDUCED GENE AND PROTEIN
NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: 0S/07/878,960
FILING DATE: 05-MAY-1992
CLASSIFICATION: 530
                                                                                                    DB 2;
15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 43; DB 1;
Pred. No. 55;
; Mismatches
                                                                                                                                          3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             E: Bristol-Myers Squibb Company 3005 First Avenue
                                                                                                  Score 43;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOOR APPLICATION DATA:
APPLICATION NUMBER: US 07/833,835
FILING DATE: 05-FEB-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME: Sorrentino, Joseph M.
REGISTRATION NUMBER: 32,598
REFERENCE/DOCKET NUMBER: 0N0092-
FELECOMMUNICATION INFORMATION:
TELEPHONE: 206/728-4800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                Sequence 2, Application US/07878960 Patent No. 5444164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADENOCARCINOMA
                                                                                             Query Match
Best Local Similarity 64.3%;
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity 55.6%;
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3 VLVLALAVALAVGDGSNL 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                683 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEFAX: 206/727-3601
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FRAGMENT TYPE: internal ORIGINAL SOURCE:
.; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-08-391-743A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY: linear
MOLECULE TYPE: protein
HYPOTHETICAL: YES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
                                                                                                                                                                                                    1:||:|| ||||:
1 MKVLILACLVALAI 14
                                                                                                                                                                             1 MRVLVLALAVALAV 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CITY: Seattle
STATE: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TISSUE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CELL TYPE:
CELL LINE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-07-878-960-2
```

1 MRASLLAFSLAAAVAGGQQAG 21

g

```
APPLICANT: Chen, Lan Bo
APPLICANT: Chen, Lan Bo
APPLICANT: Bao, Shideng
APPLICANT: Liu, Yuan
TITLE OF INVENTION: A NOVEL TUMOR MARKER AND NOVEL METHOD OF
TITLE OF INVENTION: ISOLATING SAME
NUMBER OF SEQUENCES: 19
CORRESPONDENCE ADDRESS:
ADDRESSE: Weingarten, Schurgin, Gagnebin & Hayes
STREET: Ten Post Office Square
CITY: Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 777;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Sampson et al.
TITLE OF INVENTION: Tuberous Sclerosis 2 Gene and Uses
TITLE OF INVENTION: Thereof
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 40;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/146,488
FILING DATE: 29-CCT-1993
APPLICATION NUMBER: US 08/448,388
FILING DATE: 28-MAY-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/US94/12502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/477,396A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PCT/US94/12502
                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                           Sequence 4, Application US/08477396A Patent No. 5872235 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-040-738-2; Sequence 2, Application US/09040738; Patent No. 6207374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: Heine, Holliday C.
REGISTRATION NUMBER: 34,346
REFERENCE/DOCKET NUMBER: DF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FELECOMMUNICATION INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 31-OCT-1994
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEFAX: (617) 451-0313 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          777 amino acids amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5 VLALAVALAVGDGSNL 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CITY: Boston
STATE: Massachusetts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; MOLECULE TYPE: protein US-08-477-396A-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 9; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
APPLICANT: Sampsor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY:
                                                                        RESULT 9 . . US-08-477-396A-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
APPLICANT: Radford, Alan
APPLICANT: Parish, John H.
TILLE OF INVENTION: EXPLOITATION OF THE CELLULASE COMPLEX OF
TITLE OF INVENTION: NEUROSPORA
NUMBER OF SEQUENCES: 7
                                                                                                                                                                                                                                                                                                               Length 361;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 516;
                                                                                                                                                                                                                                                                                                                                                            3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE: David A. Jackson, Esq.
STREET: 411 Hackensack Ave, Continental Plaza, 4th
STREET: Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compartible
OPERATIS: TSYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
FILING DATE: 15-JUL-1996
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 40; DB 2; Le
Pred. No. 1.2e+02;
3; Mismatches 9;
                                                                                                                                                                                                                                                                                                                                                          Mismatches
; TITLE OF INVENTION: NEW PROTEASE; FILE REFERENCE: 32290-144749
; CURRENT APPLICATION NUMBER: US/09/120,365
; CARRENT FILING DATE: 1998-07-22
; EARLIER APPLICATION NUMBER: JP 9-333 474
; EARLIER PILING DATE: 1997-11-18
; SOFTWARE: PATENT VET. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 2, Application US/08676166A Patent No. 5955270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME: Jackson Esq., David A. REGISTRATION NUMBER: 26,742
REFERENCE/DOCKET NUMBER: 1321
                                                                                                                                                                                                                                                                                                                                                                                               2 RVLVLALAV----ALAVGDGSN 19
                                                                                                                                                                                                                                                                                                                                                                                                                      PELECOMMUNICATION INFORMATION
                                                                                                                                                                                                                                                                                                                  41.7%;
54.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              41.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE CHARACTERISTICS:
LENGTH: 516 amino acids
                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity 54.55
Matches 12; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ouery Match
Best Local Similarity 42.9
Matches 9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    201-343-1684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEFAX: 201-343-1684 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; MOLECULE TYPE: protein US-08-676-166A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CITY: Hackensack
STATE: New Jersey
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                              ; ORGANISM: Aleurain
US-09-120-365-75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     07601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-676-166A-2
                                                                                                                                                                                     LENGTH: 361
                                                                                                                                                                    SEQ ID NO 75
                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                 ô
```

NUMBER OF SEQUENCES: CORRESPONDENCE ADDRESS

1 MRVLVLALAVALAVGDGSNLG 21

ò

```
Length 455,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 39; DB 2;
Pred. No. 1.4e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: HOPWOOD, John J
TITLE OF INVENTION: GLYCOSYLATION VARIANTS OF
TITLE OF INVENTION: IDDRONATE 2-SULFATASE
NUMBER OF SEQUENCES: 15
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       E: Scully, Scott, Murphy & Presser
400 Garden City Plaza
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5; Mismatches
                                                                               US/08/738,172
                                                                                                                CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 60/005,965
FILING DATE: OCCODER: 27, 1995
APPLICATION NUMBER: 08/465,003
FILING DATE: June 5, 1995
APPLICATION NUMBER: 08/575,354
FILING DATE: December 20, 1995
APPLICATION NUMBER: 08/240,158
FILING DATE: MAY 10, 1994
APPLICATION NUMBER: 08/240,158
FILING DATE: APT.11 1994
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 12, Application US/08484493 Patent No. 5728381
                                                                                                                                                                                                                                                                                                                                                                                         NAME: Warburg, Richard J.
REGISTRATION NUMBER: 32,327
REFERENCE/DOCKET NUMBER: 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bielicki, Julie
Clements, Peter R
IBM Compatible SYSTEM: IBM P.C. Word Perfect 5.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                     FELECOMMUNICATION INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 40.6%;
Best Local Similarity 44.4%;
Matches 8; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (213) 489-1600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEFANO. (213) 955-0440
TELEX: 67-3510
INFORMATION FOR SEQ ID NO: 4
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                : 455 amino acids amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MRVLVLALAVALAVGDGS 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION DATA
                                                        CURRENT APPLICATION DATA:
APPLICATION NUMBER: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOLECULE TYPE: peptide US-08-738-172-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Garden City
New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11530
                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 12
US-08-484-493-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 1, Application US/08738172

Fatent No. 5939257

GENERAL INFORMATION:
APPLICANT: Szasz, Joseph
APPLICANT: Bavis, Maria
TITLE OF INVENTION: THERMOSTABLE ALKALINE PHOSPHATASES
NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
ADDRESSEE: 1900 & Lyon
STREET: 633 West Fifth Street
STREET: Suite 4700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 1784;
  ADDRESSEE: Kathleen M. Williams, Banner & Witcoff,
                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.50 inch, 1.44 Mb storage COMPUTER: IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                41.7%; Score 40; DB 4;
nilarity 50.0%; Pred. No. 4.7e+0
Conservative 1; Mismatches
                                                                                                                                                                                                                                                                                                                        PRICATION DATA:
PRICATION DATA:
APPLICATION NUMBER: GB9326470.3
FILING DATE: 24-December-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: GB9411900.5
FILING DATE: 14-June-1994
APPLICATION NUMBER: PCT/CB94/02823
FILING DATE: 23-December-1994
PRIOR APPLICATION NUMBER: PCT/CB94/02823
FILING DATE: 33-December-1994
PRIOR APPLICATION NUMBER: 08/652,426
FILING DATE: 30-May-1996
ATTORNEY/AGENT INFORMATION:
REGISTRATION NUMBER: 34,380
REGISTRATION NUMBER: 34,380
REGISTRATION NUMBER: 34,380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5" Diskette, 1.44 Mb
MEDIUM TYPE: storage
                                                                                                                                                                                                                                                                APPLICATION NUMBER: US/09/040,738 FILING DATE: Concurrently herewith
                                                                                                                                                                                                    OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Wordperfect 6.1a CURRENT APPLICATION DATA:
                                           One Financial Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELECOMMUNICATION INFORMATION:
TELEPHONE: 617-345-9100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | |||| |: | | ||
98 RHAVLALLKAIVQGQGERLG 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 RVLVLALAVALAVGDGSNLG 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INFORMATION FOR SEQ ID NO: 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 1784 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           617-345-9111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-09-040-738-2
                                                                           Massachusetts
: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CITY: Los Angeles
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
Matches 10; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          90071-2066
                                                                                                                                                                                                                                                                                                                CLASSIFICATION:
                                                                Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                     COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 11
US-08-738-172-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
```

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 39; DB 1; Length 507;
Pred. No. 1.6e+02;
2; Mismatches 7; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/345,212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             E: Scully, Scott, Murphy & Presser
400 Garden City Plaza
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Hopwood, John J
TITLE OF INVENTION: GLYCOSYLATION VARIANT
TITLE OF INVENTION: IDURONATE 2-SULFATASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 12, Application US/08345212
Patent No. 5932211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME: Digiglio, Frank S
REGISTRATION NUMBER: 31,346
REFERENCE/DOCKET NUMBER: 8416
TELECOMMUNICATION INFORMATION:
TELEPHONE: 516-742-4343
TELEFAX: 516-742-4366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Wilson, Peter J.
Morris, Charles P
Anson, Donald S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Occhiodoro, Teresa
                                                                                                                                                                                                                                                                                                                                                                                                                                     40.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 RVLVLALAVALAVGDGSNL 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 507 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 17-DEC-1992 TTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity 52.6
Matches 10; Conservative
                                                                                                                                                      SEQUENCE CHARACTERISTICS
                                                            TELEFAX: 516-742-4366
TELEX: 230 901 SANS U.
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEX: 230 901 SANS URINFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                     TOPOLOGY: linear

MOLECULE TYPE: protein

US-08-484-494-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EQUENCE CHARACTERISTICS:
LENGTH: 507 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE:
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQUENCES: 1
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; MOLECULE TYPE: protein US-08-345-212-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CITY: Garden City
STATE: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE:
STREET: 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: DANS JOHN J
TITLE OF INVENTION: GLYCOSYLATION VARIANTS OF
TITLE OF INVENTION: IDURONATE 2-SULFATASE
NUMBER OF SEQUENCES: 15
CORRESPONDENCE ADDRESSE: SCULIN C. SUPERMENTE SCULLED CORRESPONDENCE ADDRESSE: SCULLED C. SUPERMENTE C. 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      E: Scully, Scott, Murphy & Presser
400 Garden City Plaza
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2; Mismatches
APPLICATION NUMBER: US/08/484,493
FILING DATE: 07-JUN-1995
CLASSIFICATION: 424
PRIOR APPLICATION ATA:
APPLICATION DATE: 991,973
FILING DATE: 17-DEC-1992
ATTORNEY AGENT INFORMATION:
NAME: Didiglio, Frank S
REGISTRATION NUMBER: 31,346
REFERENCE/DOCKET NUMBER: 84162
TELECHMONICATION INFORMATION:
OFFICE AND AND ADDITION FOR SEQ ID NO: 12:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 12, Application US/08484494
Patent No. 5798239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Anson, Donald S
Occhiodoro, Teresa
Bielicki, Julie
Clements, Peter R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Wilson, Peter J
Morris, Charles P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
40.6%;
Best Local Similarity 52.6%;
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE CHARACTERISTICS:
LENGTH: 507 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 RVLVLALAVALAVGDGSNL 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REGISTRATION NUMBER: 31
REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; MOLECULE TYPE: protein US-08-484-493-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Garden City
: New York
RY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-484-494-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
```

```
ö
                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 507;
Length 507;
  Query Match 40.6%; Score 39; DB 2; Length 507 Best Local Similarity 52.6%; Pred. No. 1.6e+02; Matches 10; Conservative 2; Mismatches 7; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
AUPLICATION DATA:
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                              GLYCOSYLATION VARIANTS OF IDURONATE 2-SULFATASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SSEE: Scully, Scott, Murphy & Presser P: 400 Garden City Plaza Garden City New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
40.6%; Score 39;
Best Local Similarity 52.6%; Pred. No.
Matches 10; Conservative 2; Mismatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 07/991,973
FILING DATE: 17-DEC-1992
ATTORNEY/ACENT INFORMATION:
NAME: DiG19110, Frank S
REGISTRATION NUMBER: 31,346
REFERENCE/DOCKET NUMBER: 34,165
TELECOMMUNICATION INFORMATION:
TELEPHONE: 516-742-4343
                                                                                                                                                                           RESULT 15
US-09-249-003-12
Sequence 12, Application US/09249003
Patent No. 6153188
                                                                                                                                                                                                                                                                           Wilson, Peter J
Morris, Charles P
Anson, Donald S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEFAX: 516-742-4366
TELEX: 230 901 SANS UR
INFORMATION FOR SEQ ID NO: 12
SEQUENCE CHARACTERISTICS:
LENGTH: 507 amino acids
TYPE: amino acid
                                                                                2 RVLVLALAVALAVGDGSNL 20
                                                                                                    | |:|||| ||| |:
| RSLLLALAAGLAVARPPNI 23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; TOPOLOGY: linear; NOLECULE TYPE: protein US-09-249-003-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  single
                                                                                                                                                                                                                                                                                                                                                                                                                FITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                    g
                                                                                    õ
```

Search completed: May 3, 2001, 15:51:59 Job time: 18 sec

õ

us-09-426-776-11.rst

```
em_estro20:*
gb_est25:*
gb_est26:*
gb_est27:*
gb_est29:*
gb_est29:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 em_estro17:*
em_estro18:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             em_estro19
                                                 em_esthum15
                                                              em_esthum16
              em_esthum12
                        em_esthum13
                                     esthum14
                                                                                      em_esthum18
                                                                                                                                                                                                                                                                                                                                                                                                                                         em_estpl9:*
em_estpl10:
                                                                         em_esthum17
                                                                                                  em_esthum19
                                                                                                             em_esthum20
                                                                                                                                     em_esthum22
                                                                                                                                                   em_esthum2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                em_estro14
em_estro15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          em_estro16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9b_est31:
9b_est41:
9b_est41:
9b_est42:
9b_est43:
9b_est45:
9b_est46:
9b_est46:
                                                                                                                          em_esthum2
                                                                                                                                                                            em_esthum2
                                                                                                                                                                                                   em_esthum2
                                                                                                                                                             em_esthum2
                                                                                                                                                                                       em_esthum2
                                                                                                                                                                                                                                                   em_estin3:
em_estin4:
                                                                                                                                                                                                                          em_estin1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   em_estrol
                                                                                                                                                                                                                                        em_estin2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       em_estro8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    em_estro9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                em_estrol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        em_estrol
                                                                                                                                                                                                                                                                           em_estin5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             em_estro1
                                                                                                                                                                                                                                                                                                                  em_estov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  em_estro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               em_estro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          em_estro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     em_estro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               em_estro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            em_estro
                                                                                                                                                                                                                                                                                                 em_estom
                                                                                                                                                                                                                                                                                                                             em_estov
                                                                                                                                                                                                                                                                                                                                           em_estp]
                                                                                                                                                                                                                                                                                                                                                                                                                 em_estp]
                                                                                                                                                                                                                                                                                                                                                                                                                               em_estpl
                                                                                                                                                                                                                                                                                                                                                    em_estp
                                                                                                                                                                                                                                                                                                                                                                              em_estp]
                                                                                                                                                                                                                                                                                                                                                                                         em_estp]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   em_estr
                                                                     May 5, 2001, 21:23:16; Search time 1155.53 Seconds (without alignments) 604.820 Million cell updates/sec
                                                                                                                                              1 attcacatccaccagccatg......gggaccagtccaacttgggg 80
GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                             9623517 seqs, 4368049070 residues
                                                                                                                                                                                                                                                                                                Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                               OM nucleic - nucleic search, using sw model
                                                                                                                                                                         IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                                                                                                                     US-09-426-776-11
80
                                                                                                                                                                                                                                                             Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          em_esthum6:
em_esthum7:
em_esthum8:
em_esthum9:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        em_esthum2:
em_esthum3:
em_esthum4:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9b_est24:*
9b_est33:*
9b_est33:*
9b_est35:*
9b_est36:*
9b_est37:*
9b_est37:*
9b_est38:*
9b_est49:*
em_est40:*
em_estfun:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                em_esthum5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gb_est21:
gb_est22:
gb_est23:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               em_esthum]
                                                                                                                                                                                                                                                                                                                                                             gb_estl:*
gb_est2:*
gb_est3:*
gb_est4:*
gb_est6:*
gb_est6:*
gb_est6:*
gb_est9:*
gb_est9:*
gb_est9:*
gb_est10:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gb_est18:
gb_est19:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gb_est17:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gb_est16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        qb_est20:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gb_est14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gb_est15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   p_{est13}
                                                                                                                                                                                                                                                                                                                                                    EST: *
                                                                                                                       Title:
Perfect score:
Sequence:
                                                                                                                                                                         Scoring table:
                                                                                                                                                                                                             Searched:
                                                                                                                                                                                                                                                                                                                                                 Database
                                                                        Run on:
```

```
em_gss_other:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     em_gss_hum3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             em_gss_hum4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     em_gss_hum5
em_gss_hum6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         em_gss_fun:
em_gss_huml
gb_est48:*
gb_est49:*
gb_est50:*
gb_est51:*
gb_est51:*
gb_est53:*
gb_est53:*
gb_est55:*
gb_est55:*
                                                                                                                                                                                                                                                                                                                       gb_est99:*
gb_est100:
gb_est101:
gb_est102:
gb_est103:
gb_est103:
gb_est104:
                                                                                                                                                                                                                                                                                                                                                                                   b_est106:
b_est67:*
b_est68:*
                                                                                          gb_est58:
gb_est59:
gb_est60:
gb_est61:
                                                                                                                                                                  gb_est66:
gb_est75:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gb_est95:
gb_est96:
gb_est97:
gb_est98:
                                                                                                                                                                                         gb_est77:
                                                                                                                                                                                                                                        gb_est82:
gb_est83:
                                                                                                                                                                                                                                                                  Jb_est85:
Jb_est86:
                                                                                                                                                                                                                                                                                                                                                                                                                     9b_est70
9b_est71
9b_est72
9b_est73
9b_est74:
9b_est74:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gb_est93
gb_est94
                                                                                                                             gb_est62
                                                                                                                                                                                                             gb_est79
                                                                                                                                                       gb_est65
                                                                                                                                                                                   est76
                                                                                                                                                                                                     est78
                                                                                                                                                                                                                       _est80
                                                                                                                                                                                                                                                                                            b_est88
                                                                                                                                                                                                                                                                                                               est90
                                                                                                                                                                                                                                                                                                                                                                                                               gb_est69
                                                                                                                                      3b_est63
                                                                                                                                               jb_est64
                                                                                                                                                                                                                                                        gb_est84
                                                                                                                                                                                                                                                                                                      _est89
                                                                                                                                                                                                                              b_est81
                                                                                                                                                                                                                                                                                    est87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               em_gss_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gb_est9
```

BF156722 f156a04.y BF157180 f135904.y BF13798 f112a02.y BF156818 f15200.y BF156818 f157c10.y BF156818 f157c10.y BF15694 f137a10.y BF15694 f153a06.y BF15694 f152a06.y AW15305 f12a06.y AW15305 f12a00.y

BF156722 BF157180 AW133798 BF156786 BF156818 BF15694 BF156997 BF156934

AW153678 AW175005 AW153397

4422.0 4444444422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 4422.0 442

AZ697043 BF156771 AW343413

AW343221 AZ697043 BF156771 AW343413

Ç

Description

DB ID

Length

Score

% Query Match 1

> Result No.

SUMMARIES

<pre>s_pln1:* s_pln2:* s_pro:* s_rod2:* s_rod3:* s_rod4:* s_rod4:* s_rod4:* s_rod4:* s_rod4:* s_rod4:* s_rod4:*</pre>	11: **  22: **  55: **  10: **  11: **	14: * * * * * * * * * * * * * * * * * * *	\$29;* \$30;* \$31:* \$32:* \$33:* er of results predicted by chance to have a equal to the score of the result being printed, lysis of the total score distribution.
em_gss_pln1 em_gss_pln2 em_gss_rod1 em_gss_rod2 em_gss_rod3 em_gss_rod4 em_gss_rod4 em_gss_rod4 em_gss_rod5 em_gss_rod5 em_gss_rod5	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	9b 9ss14 9b 9ss15 9b 9ss17 9b 9ss17 9b 9ss18 9b 9ss22 9b 9ss22 9b 9ss26 9b 9ss26 9b 9ss26 9b 9ss26 9b 9ss26 9b 9ss26	b_gss b_gss b_gss b_gss b_gss numbe n or
190: 191: 193: 194: 196: 196: 198:	2010 2021 2021 2041 2041 2041 2041 2101 2111	214: 215: 216: 217: 219: 220: 221: 222: 224: 224: 225: 226: 226:	229: 97 229: 97 231: 97 232: 97 232: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 97 234: 9

```
zebrafish
                                                                                                                                                                                                                                                                                                                                                                                                                                  sednence
                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                         BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                            RESULT
BF157180
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                   pp
                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                           qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Library constructed by Dr. Sumio Sugano and Dr. Koichi Kawakami DNA Sequencing by: Washington University Genome Sequencing Center Clone distribution information can be found through the I.M.A.G.E. Consortium/LINIL, send email to: info@image.llnl.gov Seq primer: T3 Ef from Amersham High quality sequence stop: 487.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Euteleostei; Ostariophysi; Cypriniformes; Cyprinidae; Rasborinae; Danio.

1 (bases 1 to 489)
Clark,M., Johnson,S.L., Lehrach,H., Lee,R., Li,F., Marra,M., Eddy,S., Hiller,L., Kucaba,T., Martin,J., Beck,C., Willer,L. Underwood,K., Steptoe,M., Theising,B., Allen,M., Bowers,Y., Person,B., Swaller,T., Gibbons,M., Pape,D., Harvey,N., Schurk,R., Ritter,E., Kohn,S., Shin,T., Jackson,Y., Cardenas,M., McCann,R., Waterston,R.
                                                                                                      AW133689 filoell.*
AN722091 fd19bbl2. Y
AW175410 fil35904.9
BF157832 fil37008.9
AW133909 fil3208.9
BF158373 fil3204.9
AN72220 fd20ell.
                                       f153f02.y
f131b12.y
                                                            £159c01.Ÿ
                                                                                                                                                                                                                                     BF156292 f150b11.y
                               f128b12.y
                                                                         f161a04.y
                                                                                   fi14a12.v
                                                                                              f132e08.y
                                                                                                                                                                                                                           f140e08.y
                                                                                                                                                                                                                                              AI721781 fd16c11.y
AW174217 f140e10.
                                                                                                                                                                                f161c07
                                                                                                                                                                                                                                                                                                                                                                  BE156722 489 bp mRNA EST 30-OCT-2000
f156a04.yl Sugano Kawakami zebrafish DRA Danio rerio CDNA clone
3817638 5' similar to TR:093605 093605 VITELLOGENIN ;, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unpublished (1998)
Contact: Stephen L. Johnson
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
Fal: 314 286 1810
                                       BF156530 f
BF158308 f
BF156971 f
BF156196 f
                                                                                  AW133980 1
BF158418 1
                                                                                                                                                                                                                BF157066
BF157517
                                                                                                                                                                                 BF156221
                                                                                                                                                                                                                                                                                                                 ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WashU Zebrafish EST Project 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Email: zbrafish@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Danio rerio"
                                         BF156530
BF158308
                                                                                                                                                   AW133909
BF158373
                                                                                                                                                                                                                BF157066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /strain="AB"
/db_xref="taxon:7955"
/clone="3817638"
                                                             BF156971
                                                                                                                            AW17
BF15
                                                                                                                                                                                 BF1
                                                                                                                                                                                                                                                                                                                                                                                                                BF156722
BF156722.1 GI:11051909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and Wilson, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Danio rerio
zebrafish
                                                                                                                                                                                                                                                                                                                                                                                                       sednence.
                                                                                                                                                                                                                                                                                                                                                                                                                                      EST
 VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                RESULT
BF156722
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
```

```
Fax: 114 & 20. 12...
Email: zbrafish@watson.wustl.edu
Library constructed by Dr. Sumio Sugano and Dr. Koichi Kawakami DNA
Sequencing Dy: washington University Genome Sequencing Center Clone
distribution information can be found through the I.M.A.G.E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Euteleostei; Ostariophysi; Cypriniformes; Cyprinidae; Rasborinae; Danio.

(Syriniformes; Cyprinidae; Rasborinae; Danio.

(Lases 1 to 502)

Clark,M., Johnson,S.L., Lehrach,H., Lee,R., Li,F., Marra,M., Eddy,S., Hillier,L., Kucaba,T., Martin,J., Beck,C., Wylie,T., Underwood,K., Steptoe,M., Theising,B., Allen,M., Bowers,Y., Person,B., Syaller,T., Gibbons,M., Papae,D., Harvey,N., Schurk,R., Ritter,E., Kohn,S., Shin,T., Jackson,Y., Cardenas,M., McCann,R., Materston,R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BE157180 502 bp mRNA EST 30-OCT-2000
fl35g04.yl Sugano Rawakami zebrafish DRA Danio rerio cDNA clone
3815983 5' similar to TR:093605 093605 VITELLOGENIN ;, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108,
Tel: 314 286 1800
Fax: 314 286 1810
                      /sex="mixed (one male and one female, including
unfertilized eggs)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       42.0%; Score 33.6; DB 144; Length 489; 66.7%; Pred. No. 0.54; Live 0; Mismatches 24; Indels 0;
/clone_lib="Sugano Kawakami zebrafish DRA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WashU Zebrafish EST Project 1998
Unpublished (1998)
Contact: Stephen L. Johnson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Consortium/LLNL, send email to:
Seq primer: T3 ET from Amersham
High quality sequence stop: 489.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Danio rerio"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BF157180
BF157180.1 GI:11052370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity 66.7
Matches 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                65 AGATGAACCTTG 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      67 agtccaacttgg 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            and Wilson, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Danio rerio
```

```
Danio rerio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              67 agtccaacttgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             zebrafish
                                                                                                                                                                                                                                                                                           144
                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S:
Matches 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
JOURNAL
                                                                                                                                                                                                                                                                                           BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BF156786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                        ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                      Email: est@watson.wustl.edu
Library constructed by Dr. Sumio Sugano and Dr. Koichi Kawakami DNA
Sequencing by: Washington University Genome Sequencing Center
Seq primer: T3 ET from Amersham
High quality sequence stop: 527.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                     ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Euteleostei; Ostariophysi; Cypriniformes; Cyprinidae; Rasborinae; Danio. (bases 1 to 559)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sugano, S., Kawakami, K., Johnson, S., Li, F., Marra, M., Eddy, S., Hillier, L., Clifton, S., Allen, M., Gibbons, M., Jost, S., Kucaba, T., Martin, J., Pape, D., Steptoe, M., Underwood, K., Theising, B., Ritter, E., Bowers, Y., Wylie, T., Waterston, R. and Wilson, R. Washu Zebrafish, EST Project 1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   612a02.yl Sugano Kawakami zebrafish DRA Danio rerio cDNA clone 2600906 5' similar to TR:093605 093605 VITELLOGENIN ;, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                           USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Contact: S.L. Johnson
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108,
Tel: 314 286 1800
Fax: 314 286 1810
            /clone="3815983"
/clone_lib="sugano Kawakami zebrafish DRA"
/sex="mixed (one male and one female, including
unfertilized eggs)"
                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                      Length 502;
                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                     Score 33.6; DB 144;
Pred. No. 0.55;
0; Mismatches 24; 1
                                                                                                                                                                                                                                                                                          primer CGACCTGCAGCTCGAGCACA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1. .559
/organism="Danio rerio"
/strain="AB"
'db_xref="taxon:7955"
                                                                                                                                                                                                                                                                                                          119 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AW133798.1 GI:6135405
                                                                                                                                                                                                                                                                                                                                                                      42.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                     48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            67 agtccaacttgg 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AATTCAACCTTG 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Danio rerio
                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best:Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            zebrafish
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sequence.
                                                                                                                                                                                                                                                                                                          125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sonrce
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
AW133798
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
```

ŏ 셤 ò g

```
/Jab_host=2019 (phage resistant) / Jab_host=2019 (Jab_host=2019) (Jab_host=2019) (Jab_host=2011) (CACTGTGG); Site_1: Draili (CACTGTGG); Site_2: Draili (CACCATGG); Ist strand cDNA was primed with an oligo(dT) primer [ATGGGCTTTTTTTTTTTTTTT]; double-stranded cDNA was ligated to a Draili adaptor [TGTTGGCTACTGG], digested and cloned into distinct Draili sites of the pMEDIS=FL3 vector (5' site CACTGTGG, 3' site CACTGTGG.) XhoI should be used to isolate the CDNA insert: Size selection was performed to exclude fragments closed. State of Tokyo Institute of Medical Science) and kindly donated by Dr. Koichi Kawakami. Custom primers for sequencing: 5' end primer CTTCTGCTCTAAAAGCTGCG and 3' end primer CGACTGGAGCAAA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostel; Euteleostel; Ostarlophysi; Cypriniformes; Cyprinidae; Rasborinae; Danio.

1 (bases I to 633)

Clark, M., Johnson, S.L., Lehrach, H., Lee, R., Li, F., Marra, M., Eddy, S., Hillier, L., Kucaba, T., Martin, J., Beck, C., Wylie, T., Underwood, K., Steptoe, M., Theising, B., Allen, M., Bowers, Y., Person, B., Swaller, T., Gibbons, M., Pape, D., Harvey, N., Schurk, R., Ritter, E., Rohn, S., Shin, T., Jackson, Y., Cardenas, M., McCann, R., Waterston, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Center Clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Library constructed by Dr. Sumio Sugano and Dr. Koichi Kawakami Sequencing by: Washington University Genome Sequencing Center Cl distribution information can be found through the I.M.A.G.E. Consortium/LLML, send email to: info@image.llnl.gov Seq primer: T3 Er from Amersham High quality sequence stop: 496.

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BF156786 633 bp mRNA EST 30-OCT-2000 f156907.yl Sugano Rawakami zebrafish DRA Danio rerio cDNA clone 3817932 5' similar to TR:093605 093605 VITELLOGENIN ;, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Contact: Stephen L. Johnson
Washington University School of Medicine
444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
/clone_lib="Sugano Kawakami zebrafish DRA"
/sex="mixed (one male and one female, including
unfertilized eggs)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 559;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 111;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 33.6; DB Pred. No. 0.56; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WashU Zebrafish EST Project 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Email: zbrafish@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  128 g
                                                                                                     /dev_stage="adult"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BF156786.1 GI:11051974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ch 42.0%;
l Similarity 66.7%;
48; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              151 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   64 AGATGAACCTIG 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
```

```
sequence.
BF157814
BF157814.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   zebrafish
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local
                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BF157814
                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                      Danio rerio

Bukaryota: Metazoa: Chordata: Cranlata: Vertebrata: Euteleostomi;
Actinopteryg1; Neopteryg1; Teleostei: Euteleostei: Ostariophys1;
Actinopteryg1; Neopteryg1; Teleostei: Danio.

1 (bases 1 to 643)
Clark,M., Johnson,S.L., Lehrach,H., Lee,R., Li,F., Marra,M., Eddy,K., St., Hillier,L., Kucaba,T., Martin,J., Beck,C., Wylie,T., Underwood,K., Steptoe,M., Theising,B., Allen,M., Bowers,Y., Person,B., Swaller,T., Gibbons,M., Pape,D., Harvey,N., Schurk,R., Ritter,E., and Wilson,R., Shin,T., Jackson,Y., Cardenas,M., McCann,R., Waterston,R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Library constructed by Dr. Sumio Sugano and Dr. Koichi Kawakami DNA Sequencing Dy: Washington University Genome Sequencing Center Clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL, send email to: info@image.llnl.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BF156818 643 bp mRNA EST 30-OCT-2000 f157c10.yl Sugano Kawakami zebrafish DRA Danio rerio cDNA clone 3817747 5' similar to TR:093605 093605 VITELLOGENIN ;, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              34 AACCACCAGCCATGAGAGCTGTTGTGTTGCCTGACTGTAGCCCTCGTGGGGAGTCAAC 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7 atccaccagccatgagggtgcttgtactagctcttgctgtggctctcgcagtgggggacc 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Contact: Stephen L. Johnson
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
                                                               /clone_lib="Sugano Kawakami zebrafish DRA"
/sex="mixed (one male and one female, including
unfertilized eggs)"
/dev_stage="adult"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 144; Length 633;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  42.0%; Score 33.6; DB 66.7%; Pred. No. 0.57; iive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WashU Zebrafish EST Project 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Email: zbrafish@watson.wustl.edu
'organism="Danio rerio"
                                  /db_xref="taxon:7955"
/clone="3817932"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BF156818.1 GI:11052006
                   /strain="AB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           94 AGATGAACCTTG 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  67 agtccaacttgg 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity
Matches 48; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             zebrafish
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sednence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BF156818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
BF156818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
```

g

ð

g

ŏ

```
Danio rerio
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Actinopterygii; Neopterygii; Teleostei; Euteleostei; Ostariophysi;
Cypriniformes; Cyprinidae; Rasborinae; Danio.

(Cypriniformes; Cyprinidae; Rasborinae; Danio.

(Clark, M., Johnson, S.L., Lehrach, H., Lee, R., Li, F., Marra, M., Eddy, S., Hillier, L., Kucaba, T., Martin, J., Bock, C.; Mylie, T., Underwood, K., Steptoe, M., Theising, B., Allen, M., Bowers, Y., Person, B.,
Swaller, T., Gibbons, M., Pape, D., Harvey, N., Schurk, R., Ritter, E.,
Kohn, S., Shin, T., Jackson, Y., Cardenas, M., McCann, R., Waterston, R.
                                                                                                                                                                                                                                                                                                                                                                                   /dev_stage="adult"
/lab_host="DH10B (phage resistant)"
/lab_host="DH10B (phage resistant)"
/lab_host="Carcarages" site_1: DraIII (CACTGTGTG);
/lab_host="Vector: pME18Bs-FL3; site_1: DraIII (CACCATGTG);
/lab_a oligo(dT) primer [ATGTGGCCTTTTTTTTTTTTTTTT];
/double-stranded cDNA was ligated to a DraIII adaptor [GTTGGCCTACTGG], digested and cloned into distinct DraIII sites of the pWE18S-FL3 vector (5' site CACTGTGC, 3' site CACCATGTG). XhoI should be used to isolate the cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Email: zbrafish@watson.wustl.edu
Library constructed by Dr. Sumio Sugano and Dr. Koichi Kawakami DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   insert. Size selection was performed to exclude fragments <1.5kb. Library constructed by Dr. Sumio Sugano (University of Tokyo Institute of Medical Science) and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  kindly donated by Dr. Koichi Kawakami. Custom primers for sequencing: 5' end primer CTTCTGCTCTAAAAGCTGCG and 3' end primer CGACCTGCAGCACACA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BF157814 718 bp mRNA EST 30-OCT-2000 f137a10.yl Sugano Kawakami zebrafish DRA Danio rerio cDNA clone 3815731 5' similar to TR:093605 093605 VITELLOGENIN';, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Contact: Stephen L. Johnson
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
Tel: 314 286 1810
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                /sex="mixed (one male and one female, including unfertilized eggs)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    42.0%; Score 33.6; DB 144; Length 643; 66.7%; Pred. No. 0.58;
tive 0; Mismatches 24; Indels 0;
                                                                                                                                                                                                                                                                               /clone_lib="Sugano Kawakami zebrafish DRA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WashU Zebrafish EST Project 1998
                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                  /clone="3817747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GI:11053013
Seq primer: T3 ET from
High quality sequence
                                                                                                                                                                                /strain-"AB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            167 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               67 agtccaacttgg 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGATGAACCTTG 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and Wilson, R.
```

```
Unpublished (1998)
Contact: Stephen L. Johnson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Danio rerio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            zebrafish.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sednence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 8
BF158524
LOCUS
DEFINITION
                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                        /dev_stage="addit"
/lab_host="addit"
/lab_host="DH10B (phage resistant)"
Sinte="Vector: pME10BS-FL3" site_1: DraIII (CACTGTGTG);
Site_2: DraIII (CACCATGTG); 1st strand cDNA was primed with an oligo(dT) primer [ATGTGGCCTTTTTTTTTTTTTT];
double-stranded cDNA was ligated to a DraIII adaptor [TGTTGGCCTACTGG], digested and cloned into distinct DraIII sites of the pmE18S-FL3 vector [5' site CACTGTGTG, 3' site CACCATGTG, XhoI should be used to isolate the cDNA
Sequencing by: Washington University Genome Sequencing Center Clone distribution information can be found through the I.M.A.G.E. Consortium/LINL, send email to: info@image.llnl.gov Seq primer: T3 ET from Amersham High quality sequence stop: 485. Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     insert. Size selection was performed to exclude fragments <1.5kb. Library constructed by Dr. Sumio Sugano (University of Tokyo Institute of Medical Science) and kindly donated by Dr. Kolchi Kawakami. Custom primers for sequencing: 5' end primer CTTCTGCTCTAAAAGCTGCG and 3' end
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Euteleostei; Ostariophysi; Cypriniformes; Cyprinidae; Rasborinae; Danio.

1 (bases 1 to 727)
Clark, M., Johnson, S.L., Lehrach, H., Lee, R., Li, F., Marra, M., Eddy, S., Hiller, L., Kucaba, T., Martin, J., Beck, C., Mylie, T., Underwood, K., Steptoe, M., Theising, B., Allen, M., Bowers, Y., Person, B., Swaller, T., Gibbons, M., Pape, D., Harvey, N., Schurk, R., Ritter, E., Kohn, S., Shin, T., Jackson, Y., Cardenas, M., McCann, R., Waterston, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BF156997 727 bp mRNA EST 30-OCT-2000 f159e07.yl Sugano Kawakami zebrafish DRA Danio rerio cDNA clone 3818197 5' similar to TR:093605 093605 VITELLOGENIN ;, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7 atccaccagccatgagggtgcttgtactagctcttgctgtggctctcgcagtgggggacc 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3 AACCACCCAGGCGATGAGAGCTGTTGCCTTGCCTGACTGTAGCCCTCGTGGGGAGTCAAC 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
Tel: 314 286 1800
                                                                                                                                                                                                                                                          DRA"
including
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 144; Length 718;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24; Indels
                                                                                                                                                                                                                                                     /clone_lib="Sugano Kawakami zebrafish
/sex="mixed (one male and one female,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 33.6; DB Pred. No. 0.59; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          primer CGACCTGCAGCTCGAGCACA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WashU Zebrafish EST Project 1998
                                                                                                                                                              /organism="Danio rerio"
                                                                                                                                                                                                            /db_xref-"taxon:7955"
                                                                                                                                                                                                                                                                                                          unfertilized eggs)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished (1998)
Contact: Stephen L. Johnson
                                                                                                                                                                                                                                  clone="3815731"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BF156997
BF156997.1 GI:11052186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       42.08;
                                                                                                                                                                                      /strain="AB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             67 agtccaacttgg 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGATGAACCTIG 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and Wilson, R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Danio rerio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      zebrafish.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BF156997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
BF156997
                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
```

ò 셤 ò

```
/dec_stage=_adult,
/lab_host=_adult,
/lab_host="DHLOB (phage resistant)"
/lab_host="DHLOB (phage resistant)"
/note==vector: pME18S-FL3; Site_1: DraIII (CACTGTGTG);
Site_2: DraIII (CACCARGTG); 1st strand cDNA was primed
with an oligo(dT) primer [ATGTGGCCTTTTTTTTTTTTTTTTTT];
double-stranded cDNA was ligated to a DraIII adaptor
[FGTTGGCCTACTGG], digested and cloned into distinct DraIII
sites of the pME18S-FL3 vector (5' site CACTGTGTG, 3' site
CACCATGTG). XhoI should be used to isolate the cDNA
insert. Size selection was performed to exclude fragments
<1.5kb. Library constructed by Dr. Sumio Sugano
(University of Tokyo Institute of Medical Science) and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Euteleostei; Ostariophysi; Cypriniformes; Cyprinidae; Rasborinae; Danio.

1 (bases 1 to 72)

1 (clark, M., Johnson, S.L., Lehrach, H., Lee, R., Li, F., Marra, M., Eddy, S., Hillier, L., Kucaba, T., Martin, J., Beck, C., Wylie, T., Underwood, K., Steptoe, M., Theising, B., Allen, M., Bowers, Y., Person, B., Swaller, T., Gibbons, M., Pape, D., Harvey, N., Schurk, R., Ritter, E., and Wilson, R., Materston, R., Materston, R.
                                                      Library constructed by Dr. Sumio Sugano and Dr. Koichi Kawakami DNA Sequencing by: Washington University Genome Sequencing Center Clone distribution information can be found through the I.M.A.G.E. Consortium/LIAN, send email to: info@thmage.llnl.gov Seq primer: T3 Er from Amersham
High quality sequence stop: 518.

Location/Qualifiers
1.727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sequencing: 5' end primer CTTCTGCTCTAAAAGCTGCG and 3' end primer CGACCTGCAGCACAAA."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BF158524 727 bp mRNA EST 30-OCT-2000 f133g04.yl Sugano Kawakami zebrafish DRA Danio rerio cDNA clone 3815623 5' similar to TR:093605 093605 VITELLOGENIN ;, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7 atccaccagccatgagggtgcttgtactagctcttgctgtggctctcgcagtgggggacc 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3 AACCACCCATGAGAGCTGTTGTGCTTGCCCTGACTGTAGCCCTGTGGCGAGTCAAC 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone_lib="Sugano Kawakami zebrafish DRA"
/sex="mixed (one male and one female, including
unfertilized eggs)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 33.6; DB 144; Length 727;
Pred. No. 0.59;
0; Mismatches 24; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WashU Zebrafish EST Project 1998
Fax: 314 286 1810
Email: zbrafish@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                           /organism="Danio rerio"
                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="taxon:7955"
                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone="3818197"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BF158524.1 GI:11053728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ch 42.0%;
1 Similarity 66.7%;
48; Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                   /strain="AB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  185 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      67 agtccaacttgg 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       63 AGATGAACCTTG 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
Matches 48; Conserv
```

```
Danio rerio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AW153678.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             zebrafish.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sednence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AW153678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
ORIGIN
  TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AW153678
                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /deb_nost="DH10B" (phage resistant)"
/deb_nost="DH10B" (phage resistant)"
/note="Vector: pME18S-FL3; Site_1: DraIII (CACTGTGTG);
Site_2: DraIII (CACCATGTG); lst strand cDNA was primed
with an oligo(dT) primer [ATGGCCTTTTTTTTTTTTTTT];
double-stranded cDNA was ligated to a DraIII adaptor
[TGTTGGCCTACTGG], digested and cloned into distinct DraIII
sites of the pME18S-FL3 vector (5' site CACTGTGTG, 3' site
CACCATGTG). XhoI should be used to isolate the cDNA
insert. Size selection was performed to exclude fragments
cl.5kb. Library constructed by Dr. Sumio Sugano
(University of Tokyo Institute of Medical Science) and
kindly donated by Dr. Koichi Kawakami. Custom primers for
sequencing: 5' end primer CTTCTCTCTAAAGCTGCG and 3' end
primer CGACCTGCAGCAGAA.
                                                                          Eax: 314 286 1810
Email: zbrafish@watson.wustl.edu
Library constructed by Dr. Sumio Sugano and Dr. Koichi Kawakami DNA
Sequencing by: Washington University Genome Sequencing Center Clone
distribution information can be found through the I.M.G.E.
Consortium/Link, send email to: info@image.llnl.gov
Seq primer: T3 ET from Amersham
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Euteleostei; Ostariophysi; Cyprinifones; Cyprinidae; Rasborinae; Danio.

1 (bases 1 to 736)
Clark,M., Johnson,S.L., Lehrach,H., Lee,R., Li,F., Marra,M., Eddy,S., Hillier,L., Kucaba,T., Martin,J., Beck,C., Mylie,T., Underwood,K., Steptoe,M., Theising,B., Allen,M., Bowers,Y., Person,B., Swaller,T., Gibbons,M., Pape,D., Harvey,N., Schurk,R., Ritter,E., Kohn,S., Shin,T., Jackson,Y., Cardenas,M., McCann,R., Waterston,R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BFI56434 736 bp mRNA EST 30-OCT-2000 f152a06.yl Sugano Kawakami zebrafish DRA Danio rerio cDNA clone 3817258 5' similar to TR:093605 093605 VITELLOGENIN ;, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7 atccaccagccatgaggtgcttgtactagctcttgctgtggctctcgcagtggggacc 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3 AACCACCAGCCATGAGAGCTGTTGTGCTTGCCCTGACTGTAGCCCTCGTGGCGAGTCAAC 62
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               including
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            / Match 42.0%; Score 33.6; DB 144; Length 727; Local Similarity 66.7%; Pred. No. 0.59; les 48; Conservative 0; Mismatches 24; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         zebrafish DRA"
                                                                                                                                                                                                                                                                                                                                                                                       /db_xref="taxon:7955"
/clone="3815623"
/clone_lib="Sugano Kawakami zebrafish |
/sex="mixed (one male and one female,
unfertilized eggs)"
/dev_stage="adult"
                                                                                                                                                                                                                                                                                                                                                /organism="Danio rerio"
                                                                                                                                                                                                                                                             High quality sequence stop: 508.
                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BF156434.1 GI:11051618
                                                                                                                                                                                                                                                                                                                                                                            /strain="AB"
                                                 Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           67 agtccaacttgg 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            63 AGATGAACCTTG 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and Wilson, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Danio rerio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          zebrafish
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 48
                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
BF156434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
```

셤 à 셤

ç

```
Email: Zbrafishewatson.wustl.edu
Library constructed by Dr. Sumio Sugano and Dr. Kolchi Kawakami DNA
Library constructed by Dr. Sumio Sugano and Dr. Kolchi Kawakami DNA
Sequencing by: Washington University Genome Sequencing Center Clone
distribution information can be found through the I.M.A.G.E.
Consortium/Lini, send email to: info@image.llnl.gov
Seq primer: T3 ET from Amersham
High quality sequence stop: 518.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neoperygii; Teleostel; Euteleostei; Ostarlophysi; Cypriniformes; Cyprinidae; Rasborinae; Danio.

1 (bases, 1 to 763)
Sagano, S., Kawkami, K., Johnson, S., Li, F., Marra, M., Eddy, S., Hillier, L., Clifton, S., Allen, M., Gibbons, M., Jost, S., Kucaba, T., Martin, J., Pape, D., Steptoe, M., Underwood, K., Theising, B., Ritter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AW153678 763 bp mRNA EST 03-NOV-1999
fi24e02.yl Sugano Kawakami zebrafish DRA Danio rerio cDNA clone
2602106 5' similar to TR:093605 093605 VITELLOGENIN ;, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="Vector: pME185-FL3; Site_1: Drail (CACTGTGTG); Site_2: DrailI (CACCATGTG); 1st strand cDNA was primed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7 atccaccagccatgagggtgcttgtactagctcttgctgtggctctcgcagtgggggacc 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3 AACCACCAGCCATGAGAGCTGTTGTGCTTGCCTGACTGTAGCCCTCGTGGCGAGTCAAC 62
                                                                     Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
TTE1: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone_lib="Sugano Kawakami zebrafish DRA"
/sex="mixed (one male and one female, including
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 33.6; DB 144; Length 736; Pred. No. 0.59;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               24; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /dev_stage="adult"
/lab_host="DH10B (phage resistant)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                primer CGACCTGCAGCTCGAGCACA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
WashU Zebrafish EST Project 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Danio rerio"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /db_xref="taxon:7955"
/clone="3817258"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               unfertilized eggs)"
                                                 Contact: Stephen L. Johnson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GI:6201578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /strain="AB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     42.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best_Local Similarity 66.7
Matches 48; Conservative
                       Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGATGAACCTTG 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                67 agtccaacttgg 78
```

us-09-426-776-11.rst

```
WashU Zebrafish EST Project 1999
Unpublished (1999)
Other_ESTs: fi31b10.x1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AW153397.1 GI:6201297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity 66.7%;
Matches 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     67 agtccaacttgg 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGATGAACCTTG 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Danio rerio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     fi20c02.y1
2601698 5'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    zebrafish.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sednence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AW153397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCUS
DEFINITION
   TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AW153397
                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                       Library constructed by Dr. Sumio Sugano and Dr. Koichi Kawakami DNA Sequencing by: Washington University Genome Sequencing Center Seq primer: T3 ET from Amersham
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Actinopterrygii; Neopterygii; Teleostei; Euteleostei; Ostariophysi;
Cypriniformes; Cyprinidae; Rasborinae; Danio.
1 (bases 1 to 763)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sugano, S., Kawakami, K., Johnson, S., Li, F., Marra, M., Eddy, S., Hillier, L., Clifton, S., Allen, M., Gibbons, M., Jost, S., Kucaba, T., Martin, J., Pape, D., Steptoe, M., Underwood, K., Theising, B., Ritter, E., Bowers, Y., Wylie, T., Waterston, R. and Wilson, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AW175005 763 bp mRNA EST 16-NOV-1999
fi31b10.yl Sugano Kawakami zebrafish DRA Danio rerio cDNA clone
2639227 5' similar to TR:093605 093605 VITELLOGENIN ;, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7 atccaccagccatgagggtgcttgtactagctcttgctgtggctctcgcagtggggacc 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3 AACCACCAGCCATGAGAGCTGTTGTGCTTGCCCTGACTGTAGCCCTCGTGGCGAGTCAAC 62
                                                                                    USA
                             Unpublished (1999)

Contact: S.L. Johnson
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108,
Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 111; Length 763;
,E., Bowers,Y., Wylie,T., Waterston,R. and Wilson,R.
WashU Zebrafish EST Project 1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 24; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 33.6; DI
Pred. No. 0.6;
0; Mismatches
                                                                                                                                                                                             High quality sequence stop: 524.
Location/Qualifiers
                                                                                                                                                                                                                                                  /organism-"Danio rerio"
                                                                                                                                                                                                                                                                                   /db_xref="taxon:7955"
                                                                                                                                Email: est@watson.wustl.edu
                                                                                                                                                                                                                                                                                                /clone="2602106"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GI:6441025
                                                                                                                                                                                                                                                                 /strain-"AB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 66.7%;
Matches 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               67 agtccaacttgg 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              63 AGATGAACCTTG 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sequence.
AW175005
AW175005.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Danio rerio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               zebrafish
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EST
                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 11.
AW175005
LOCUS
            TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
```

ò g ò q

```
Kawakami DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Catinopterygii; Neopterygii; Teleostei; Euteleostei; Ostariophysi;
Cypriniformes; Cyprinidae; Rasborinae; Danío.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 (bases 1 to 764)
Squano, S., Kawakami, K., Johnson, S., Li, F., Marra, M., Eddy, S.,
Hillier, L., Clifton, S., Allen, M., Gibbons, M., Jost, S., Kucaba, T.,
Martin, J., Pape, D., Steptoe, M., Underwood, K., Theising, B., Ritter, E., Bowers, Y., Wylie, T., Waterston, R. and Wilson, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          764 bp mRNA EST 03-NOV-1999 Sugano Kawakami zebrafish DRA Danio rerio cDNA clone similar to TR:093605 093605 VITELLOGENIN ;, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /dev_stage="adult"
/lab_bost="bott"
/note="vector: phBage resistant)"
/note="vector: phBal8s-FL3; Site_1: DraIII (CACTGTGTG);
Site_2: DraIII (CACCATGTG); 1st Strand cDNA was prined
Contact: S.L. Johnson.

Contact: S.L. Johnson.

Hashington University School of Medicine

4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA

Tel: 314 286 1800

Fax: 314 286 1810

Email: est@watson.wustl.edu

Library constructed by Dr. Sumio Sugano and Dr. Koichi Kawakam

Sequencing by: Washington University Genome Sequencing Center

Seq primer: T3 ET from Amersham

High quality sequence stop: 520.

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7 atccaccagccatgagggtgcttgtactagctcttgctgtggctctcgcagtgggggacc 66
                                                                                                                                                                                                                                                                                                                                                                                           /clone="2639227"
/clone_lib="Sugano Kawakami zebrafish DRA"
/sex="mixed (one male and one female, including
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 763;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         24; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       primer CGACCTGCAGCTCGAGCACA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 33.6; Di
Pred. No. 0.6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches
                                                                                                                                                                                                                                                                                                                        /organism="Danio rerio"
                                                                                                                                                                                                                                                                                                                                                /strain="AB"
/db_xref="taxon:7955"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 unfertilized eggs)"
```

TITLE JOURNAL COMMENT

source

FEATURES

```
with an oligo(dT) primer [ATGNGGCTTTTTTTTTTTTT];
double-stranded oDNA was lgated to a Draili adaptor
[TGTNGGCTACTGG], digested and cloned into distinct Draili
sites of the pWE18S-FL3 vector [5' site CACTGTGTG, 3' site
CACCATGTO). XhoI should be used to isolate the cDNA
insert. Size selection was performed to exclude fragments
<1.5Xb. Library constructed by Dr. Sumio Sugano
(University of Tokyo Institute of Medical Science) and
kindly donated by Dr. Kolchi Kawakami. Custom primers for
sequencing: 5' end primer CTTCTGCTCTAAAAGCTGGG and 3' end
primer CGACCTGCAGCAGCAG.

primer CGACCTGCAGCAGCAGAG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Euteleostei; Ostariophysi; Cypriniformes; Cyprinidae; Rasborinae; Danio.

1 (bases 1 to 740)

Clark M., Johnson, S.L., Lehrach, H., Lee, R., Li, F., Marra, M., Eddy S., Hillier, L., Kucaba, T., Martin, J., Beck, C., Wylie, T., Onderwood S.K., Steptoe, M., Theising, B., Allen, M., Bowers, Y., Person, B., Swaller, T., Gibbons, M., Pape, D., Harvey, N., Schurk, R., Ritter, E.,
                                                                                                                                                                                                                                                                                                                                    Library constructed by Dr. Sumio Sugano and Dr. Koichi Kawakami DNA Sequencing by: Washington University Genome Sequencing Center Seq primer: T3 ET from Amersham High quality sequence stop: 521.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BF157419 740 bp mRNA EST 30-OCT-2000 f138b06.yl Sugano Kawakami zebrafish DRA Danio rerio cDNA clone 3816130 5' similar to TR:093605 093605 VITELLOGENIN ;, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /dev_stage="aduit"
//lab_host="aduit"
//note="vector: pubs.85-FLJ; Site_1: DraIII (CACTGTGTG);
Site_2: DraIII (CACCATGTG); lst strand cDNA was primed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4 cacatccaccagccatgagggtgcttgtactagctcttgctgtgggctctcgcagtggggg 63
                                                                         Other_ESTs: fi06f12.x1
Contact: S.L. Johnson
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /clone_lib="Sugano Kawakami zebrafish DRA"
/sex="mixed (one male and one female, including
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 614;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           26; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  41.8%; Score 33.4; DB 111;
65.3%; Pred. No. 0.66;
Live 0; Mismatches 26;
       Zebrafish EST Project 1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Danio rerio"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db_xref="taxon:7955"
/clone="2600399"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        unfertilized eggs)*
                                                                                                                                                                                                                                                                                                     Email: est@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BF157419.
BF157419.1 GI:11052544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /strain="AB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity 65.3
Matches 49; Conservative
                                                  Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1. .614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       64 accagtccaacttgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Danio rerio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     zebrafish
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sednence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14
   TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 1
BF157419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /dev_stage="adult"
/lab_host="bhl0B (phage resistant)"
/lab_host="bhl0B (phage resistant)"
/lab_host="bhl0B (phage resistant)"
/lab_host="bhl0B (phage resistant)"
/lab_host="bhl0B" (phage resistant)
/lab_host="
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                           Kawakami DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bukaryota; Metazoa; Chordata; Cranlata; Vertebrata; Buteleostomi;
Actinopterygii; Neopterygii; Teleostei; Buteleostei; Ostariophysi;
Cypriniformes; Cyprinidae; Rasborinae; Danio.
1 (bases 1 to 614)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sugano, S., Kawakami, K., Johnson, S., Li, F., Marra, M., Eddy, S., Hillar, L., Clifton, S., Allan, M., Glbbons, M., Jost, S., Kucaba, T., Martin, J., Pape, D., Eteptoe, M., Underwood, K., Theising, B., Ritter, E., Bowers, Y., Wylie, T., Waterston, R. and Wilson, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AW128094 614 bp mRNA EST 25-OCT-1999
fi06f12.yl Sugano Kawakami zebrafish DRA Danio rerio cDNA clone
2600399 5' similar to TR:093605 093605 VITELLOGENIN ;, mRNA
                                                                                                                                                                                                                                                                                         Email: est@watson.wustl.edu
Library constructed by Dr. Sumio Sugano and Dr. Koichi Kawakam
Sequencing by: Washington University Genome Sequencing Center
Seq primer: T3 Er from Amersham
High quality sequence stop: 519.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7 atccaccagccatgagggtgcttgtactagctcttgctgtggctctcgcagtgggggacc 66
                                                                                                                                                                                 4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /clone_lib="Sugano Kawakami zebrafish DRA"
/sex="mixed (one male and one female, including
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              42.0%; Score 33.6; DB 111; Length 764; 66.7%; Pred. No. 0.6; Live 0; Mismatches 24; Indels 0;
                                                                                                                                                          Medicine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         primer CGACCTGCAGCTCGAGCACA.
192 c 180 q 188 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /clone_lib-"Sugano Kawakami
WashU Zebrafish EST Project 1999
Unpublished (1999)
Other_ESTs: fi20c02.x1
Contact: S.L. Johnson
Washington University School of M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Danio rerio"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:7955"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    unfertilized eggs)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /clone="2601698"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AW128094.1 GI:6115998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /strain-"AB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity 66.77
Matches 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    67 agtccaacttgg 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61 AGATGAACCTTG 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Danio rerio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             zebrafish
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AW12809
```

BASE COUNT

ORIGIN

ò g Š q EST

ACCESSION VERSION KEYWORDS SOURCE ORGANISM

REFERENCE AUTHORS

AW128094 LOCUS DEFINITION

RESULT 13

ö

Gaps

ö

```
Hillier,L., Clifton,S., Allen,M., Gibbons,M., Jost,S., Kucaba,T.,
Martin,J., Pape,D., Steptoe,M., Underwood,K., Theising,B., Ritter,E., Bowers,Y., Wylie,T., Waterston,R. and Wilson,R.
WashU Zebrafish,EST Project 1999
                                                                                                    Unpublished (1999)
Other ESTs: fil4g10.x1
Contact: S.L. Johnson
Mashington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5, 2001, 21:46:11
                                                                                                                                                                                                                                     Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACAATTCAACCTTG 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 48; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Search completed: May
Job time: 1375 sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                182
                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                               TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      οχ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /dev_stage="adult"
/lab_host="adult"
/lab_host="adult"
/lab_host="bH10B (phage resistant)"
/lab_host="bH10B (phage resistant)"
/lab_host="bH10B (phage resistant)"
/lab_host="wector: pME18S-FL3; Site_1: DraIII (CACTGTGTG);
Site_2: DraIII (CACCATGTG); 1st strand cDNA was primed
with an oligo(dT) primer [ATGTGGCCTTTTTTTTTTTTTTTTTTTTTT];
double-stranded cDNA was ligated to a DraIII adaptor
[TGTTGGCCTACTGG], digested and cloned into distinct DraIII
sites of the pME18S-FL3 vector (5' site CACTGTGTG, 3' site
CACCATGTG). MoI should be used to isolate the cDNA
insert. Size selection was performed to exclude fragments
cl.Skb. Library constructed by Dr. Sumio Sugano
(University of Tokyo Institute of Medical Science) and
kindly donated by Dr. Koichi Kawakami. Custom primers for
sequencing: 5' end primer CTTCTGCTGTAAAGGTGCG and 3' end
primer CGACCTCGAGCACA.
                                                                                                                                                                                                                           Email: zbrifish@watson.wustl.edu
Library constructed by Dr. Sumlo Sugano and Dr. Koichi Kawakami DNA
Library constructed by Dr. Sumlo Sugano and Dr. Koichi Kawakami DNA
Sequencing by: Washington University Genome Sequencing Center Clone
distribution information can be found through the I.M.A.G.E.
Consortium/LiNL, send email to: info@lmage.llnl.gov
Seq primer: T3 ET from Amersham
High quality sequence stop: 509.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi; Actinopterygii; Neopterygii; Teleostei; Euteleostei; Ostariophysi; Optiniformes; Cyprinidae; Rasborinae; Danio.

1 (bases 1 to 667)
Sugano, S., Kawakami, K., Johnson, S., Li, F., Marra, M., Eddy, S.,
Shin, T., Jackson, Y., Cardenas, M., McCann, R., Waterston, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AW343221 667 bp mRNA EST 31-JAN-2000 f174910.yl Sugano Kawakami zebrafish DRA Danio rerio cDNA clone 2643426 5' similar to TR:093605 093605 VITELLOGENIN ;, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8 tccaccagccatgagggtgcttgtactagctcttgctgtggctctcgcagtgggggacca 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /sex="mixed (one male and one female, including unfartilized eggs)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 32.6; DB 144; Length 740; Pred. No. 1.3; 0; Mismatches 24; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 others
                                                  WashU Zebrafish EST Project 1998

    .740
    /organism="Danio rerio"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="taxon:7955"
/clone="3816130"
                                                                         Unpublished (1998)
Contact: Stephen L. Johnson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AW343221
AW343221.1 GI:6839587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               40.8%;
66.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /strain="AB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 40.8 Best Local Similarity 66.2 Matches 47; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                95 ATTCAACCTTG 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                68 gtccaacttgg 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Danio rerio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          zebrafish
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sednence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           196
                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
VERSION
KEYWORDS
SOURCE .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15
                                               TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AW343221
                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
```

```
Dr. Koichi Kawakami DNA
Sequencing Center
                                                                                                                                                                                                                                                                                                                                                                                            (University of Tokyo Institute of Medical Science) and kindly donated by Dr. Koichi Kawakami. Custom primers for sequencing: 5' end primer CTTCTGCTCTAAAAGCTGCG and 3' end primer CTACTGCTCTAAAAGCTGCG and 3' end primer CGACCTGCAGCACA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5 acatccaccagccatgagggtgcttgtactagctcttgctgtggtctctcgcagtggggga 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 AAAACCACCAGCCATGAGAGCTGTTGTGCTTGCCTTGACTGTAGCCCTCGTGGCATGTCA 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Library constructed by Dr. Sumio Sugano and Sequencing by: Washington University Genome Seq primer: T3 ET from Amersham High quality sequence stop: 524.
                                                                                                         /organism="Danio rerio"
                                                                                                                                          /db_xref="taxon:7955"
                                                                                                                                                                                                                                                                                                                                                                                                                                                            160 g
Email: est@watson.wustl.edu
                                                                                                                                                         /clone="2643426
                                                                                                                        /strain="AB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                            160 c
                                                                                       1. .667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    65 ccagtccaacttgg 78
```